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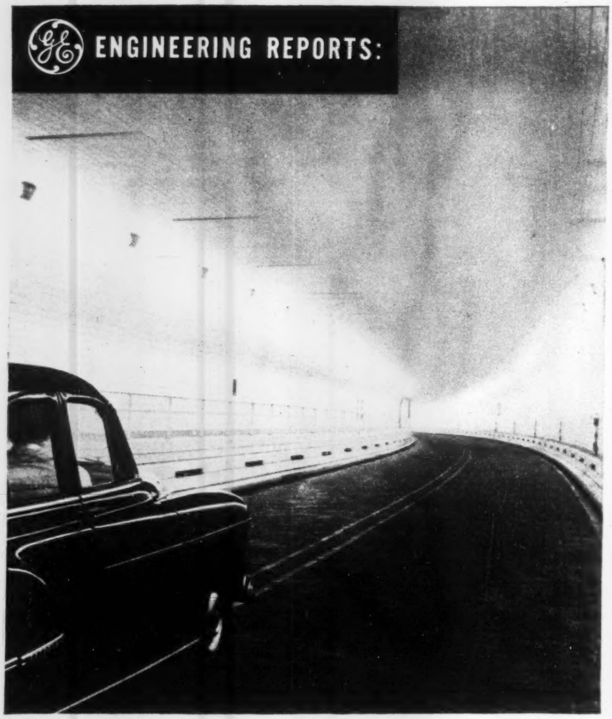

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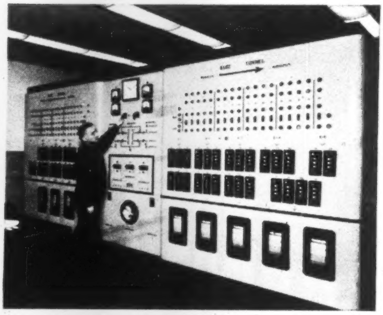

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Let's Call Wire Rope Constructions

by their Right Names!

This is a message of importance to every user and purchaser of wire rope. It is information that will help eliminate much of the past confusion over wire rope terminology.

How did this confusion arise? Let's illustrate briefly. For years 6 x 19 has been just a name for a variety of six-strand ropes, few of which actually have 19 wires per strand. As an example, our popular 6 x 19 W has always contained 25 wires per strand; the 6 x 19 U, 21 wires per strand. The 6 x 19 Seale, on the other hand, really does have 19 wires in each of its strands. Until recently, the letter or name following the numbers denoted the actual construction; but many users did not know this, and the omission of these symbols occasionally resulted in costly misapplications.

To clarify matters in the various classes of rope, Bethlehem has revised the entire list of misleading designations. For instance, in the Bethlehem terminology, Type W rope is now designated—accurately—as 6 x 25 W (not 6 x 19); Type Q is 6 x 41 Q (not 6 x 37). This completely accurate terminology applies to each and every rope that Bethlehem makes.

Nothing has been changed but the designation. The ropes are made to the same high standards of Bethlehem quality. *Constructions are the same as in the past.* Only the names, the designations, are different. The numbers now mean what they say.

We earnestly solicit your help in publicizing this information. The transition now under way is one that has long been needed.

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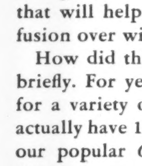
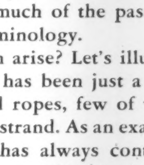
BETHLEHEM STEEL

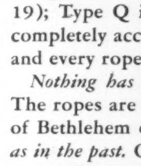
6 x 25 Type W



6 x 21 Type U



6 x 19 Seale



Of these three ropes, Seale is the only one with 19 wires a strand. Yet for years all three types have been known as 6 x 19. This is not an isolated case. Similar instances occur in other classifications of rope.

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 149 August 7, 1952 No. 6

WALDO G. BOWMAN
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FEATURES IN THIS ISSUE

Pier 57 floats to its new berth 26
Home builders get wage concessions 30
$30 million shopping center planned 35
Pre-assembly pays dividends on span 40
Airport tower sits on steel tube 45
Hexagonal classrooms get approval 46
Earth fill placed in winter 49
Concrete logs seal diversion tunnel 53
New Lawrence experiment station planned 56
Volga-Don Canal completed in Russia 71
Hydraulics expert gets new post 75
Prices and wages boost construction costs 101
Construction to surge along the Missouri 102
Motels mean construction dollars 106
New lube prolongs engine life 127

DEPARTMENTS

Reader Comment 7
Scoreboard 19
Construction Week 21
News of the Week 23
Labor 30
Municipal 35
Research 56
Meetings 65
International 68
Men and Jobs 75
Obituaries 80
Material Prices 93
Business and Finance 101
Construction Reports 107
New Products 127
Editorials 132

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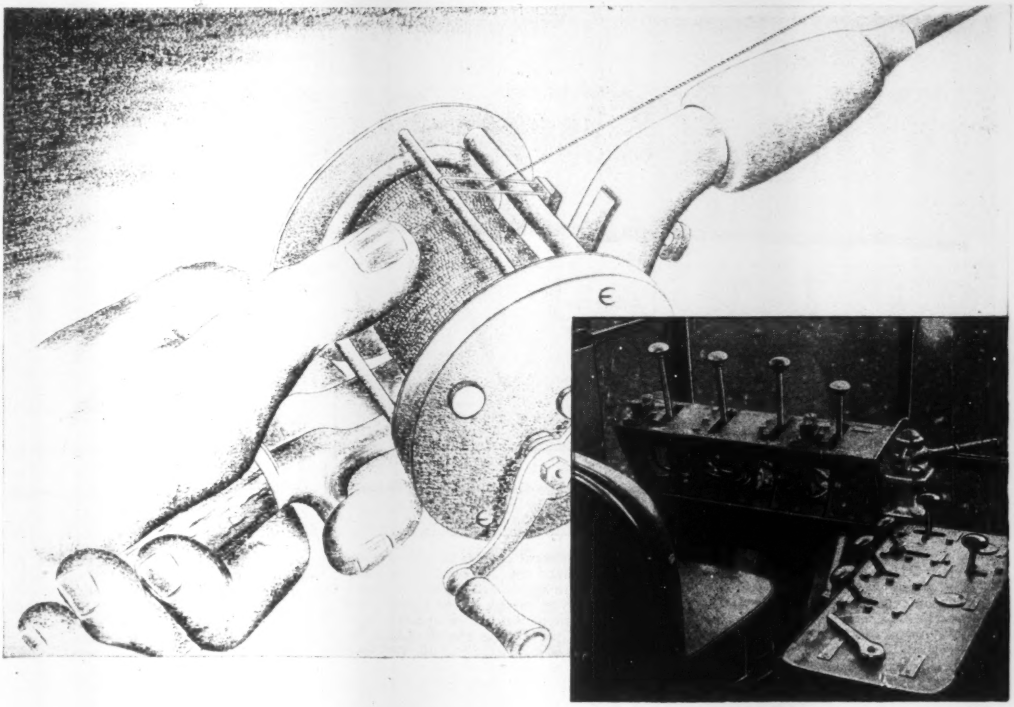

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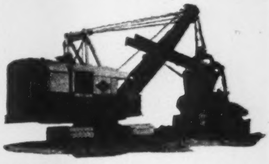

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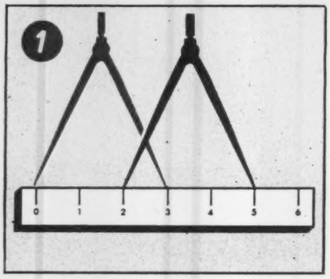
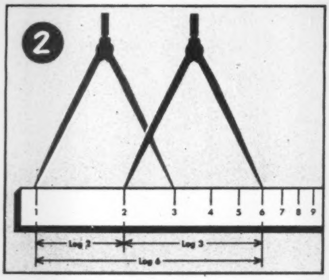
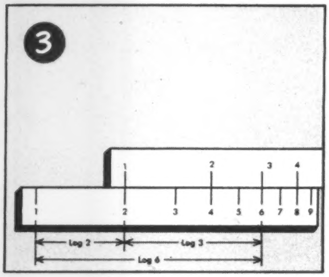
Why a Slide Rule Adds



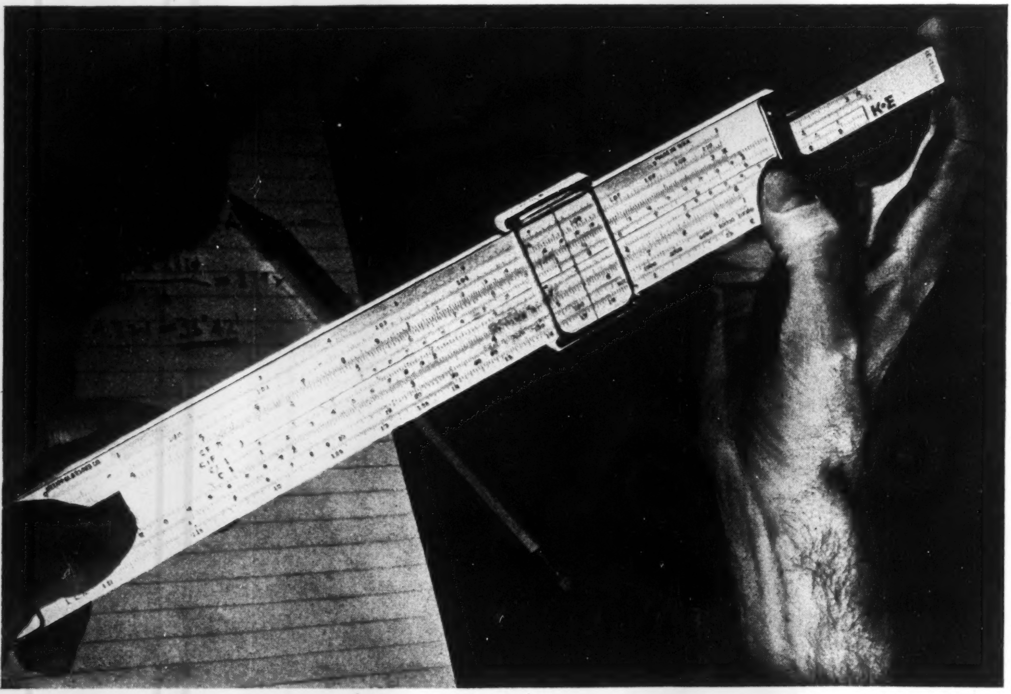
In a mechanical sense, the slide rule merely adds and subtracts quantities. How these simple operations can be performed mechanically may be seen from the illustration above, which shows the addition of 2 and 3 by means of a pair of dividers applied to an ordinary 6-inch rule. Even many electronic calculators work basically on this principle.



With a different system of calibrations on the scale, if appropriate meanings are assigned to them, more difficult problems may be solved in the same way. An example of this is seen above where a pair of dividers is shown adding 2 and 3 on a logarithmic scale and obtaining the answer 6. Advantage is taken of the fact that the multiplication of numbers may be accomplished by the addition of their logarithms.

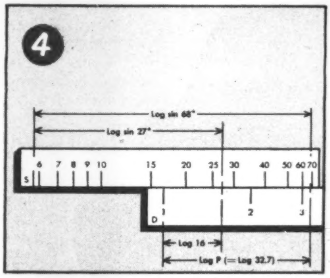


A handier method, which begins to approach the usefulness of a slide rule, is to place two similar logarithmic scales together. Seen above is the simple setting in which 2 is shown being multiplied by 3. Observing the illustration it can be seen that the same setting also multiplies 2 by 2 and 4. Without changing the setting, the device shows the corresponding operations in division.



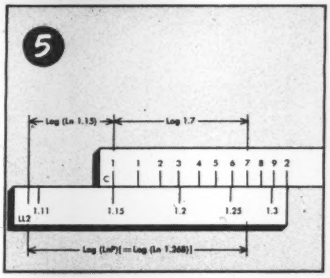
to Multiply

4



Problems in plane trigonometry require only appropriate logarithmic scales, calibrated to read in degrees so that operations can be performed on the functions of angles. Two scales of this kind are generally used: one for the sines of angles and the other for tangents. Above is seen a setting for finding $P = \frac{16 \text{ Sin } 68°}{\text{Sin } 27°}$.

5



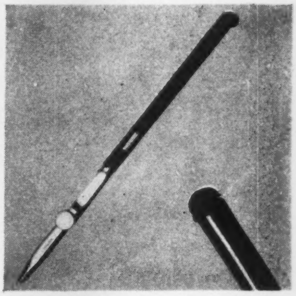
Problems of greater complexity, involving higher powers and roots of numbers, including fractional and negative powers and roots, can also be made as easy as $2 + 3$ by means of appropriate logarithmic scales. Known as log log scales, they are calibrated to read in logarithms of logarithms. Above is seen a setting for finding $P = 1.15^{1.7}$.

The slide rule has been called the symbol of the engineer. The symbol that distinguishes the slide rule itself for leadership in design and workmanship is the K&E trade mark or the name KEUFFEL & ESSER CO.

Pioneers in the manufacture of slide rules in America, K&E have always been in the forefront with new ideas and improvements. The most recent example is the slide rule of today, the K&E Log Log Duplex Decitrig*, designed on the fundamental and simple principle of referring all its scales to the basic C-D scales. This enables problems involving arithmetic, trigonometric and exponential functions to be readily solved without reading any but the final answer.

Ask your K&E Distributor or Branch for full information about K&E Slide Rules.

The Right Angle



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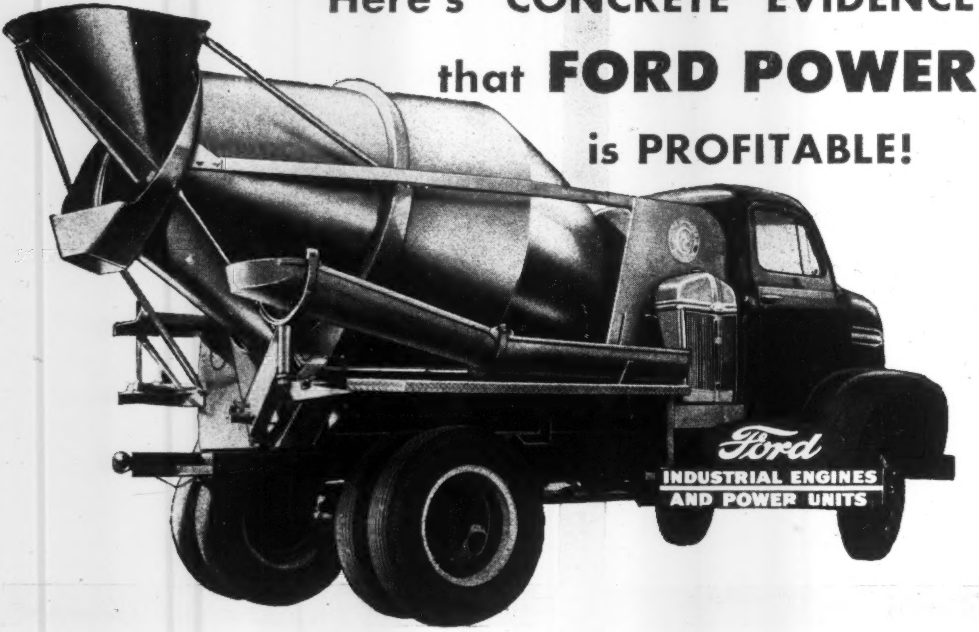

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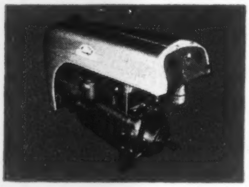

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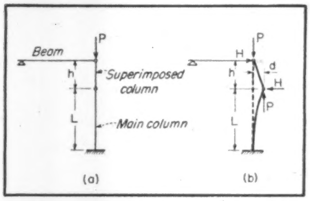

FIG. 1. TWO-HINGED COLUMN supported on a free-standing column may have to carry a horizontal force also.

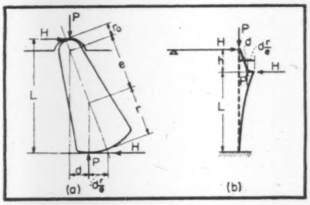

FIG. 2. ROCKER with different centers of curvature for top and bottom surfaces may act like hinged column in Fig. 1.

Was viaduct support stable?

Sir: Your editorial "Learning from accidents" (ENR July 3, p. 128), and the factual report on the accident to the viaduct in Sullivan Square, Boston, (ENR June 19, p. 28) should be welcomed by the profession as a wholesome attempt to extend our knowledge from the experiences of others and to point out pitfalls that may be avoided.

The conflicting reports of consultants, miscellaneous suggestions and assumptions by some of them, and the interjection of conditions extraneous to the fundamental problem, so becloud the issue that the basic problem of the stability of the bent, in combination with the type of rockers used, should be re-examined and the critical weakness re-emphasized.

• **Unlikely explanations**—The following suggestions and assumptions are largely extraneous or minor aggravations to the basic stability problem involved and may be eliminated:

1. The suggestion that a free-standing bent is unstable is untenable. Many such bents, properly designed and loaded, have been constructed and have given satisfactory service.

2. The suggestion that expansion rockers, without a common center of curvature for top and bottom bearing surfaces, were the sole cause of the accident is equally untenable. While this type of rocker should generally be avoided, it may be properly used when the structure carried and the support against which it reacts are sufficiently rigid to effectively overcome the thrusts produced.

3. The suggestion that vibration from adjacent elevated electric trains, and even heavy highway traffic, caused the failure has little merit. The stability of a highway bridge should not be jeopardized by such relatively insignificant forces.

4. Citing the failure of the anchor bolts at the base of the bent as the cause of failure is merely jumping to a conclusion. Such failure may be merely an after-effect, or a minor contributory effect, as distinguished from the initial or basic cause of failure. In the present case, failure of the bent would have ensued even if the anchorage had been infinitely strong.

5. The suggestion that both sets of rockers tipped in the same direction so that their thrusts no longer counterbalanced each other gives the unwarranted and optimistic impression that stability might have been obtained by proper counterbalancing of thrusts. In the present case, suggestion of such balance is academic, since the reactions of adjacent spans were unequal. Also, the lengths of adjoining connected girders subject to temperature effects were unequal, being 148 ft on one side and 46 ft on the other. These unequal lengths produce correspondingly unequal tilts of the two sets of rockers, such motion amounting to about ¾ in. and ¼ in., respectively, for a temperature change of 60 F. Only a highly mechanized arrangement could be expected to balance such unequal loads, unequal expansion movements and resulting thrusts.

6. The assumption that the rockers were improperly installed, causing a great horizontal thrust, merely diverts attention from the basic cause of the collapse. If the rockers were erected within reasonable limits of accuracy, as one must assume and as reports indicate, then such tilt, if any, would merely augment the critical inherent weakness of the system. Temperature effect would soon produce the same, similar or perhaps more severe tilt of the rockers, even if they had been erected in perfect position originally.

• **Rocker-bent detail analyzed**—What is of more significance is the basic stability problem of the combination of a pin-ended column (or rocker with two centers of curvature, which

(Continued on p. 10)

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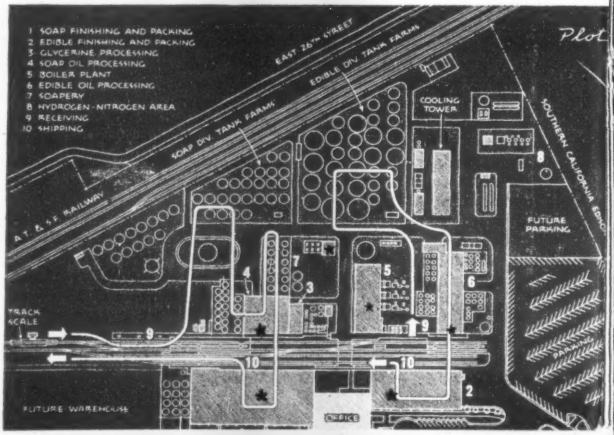
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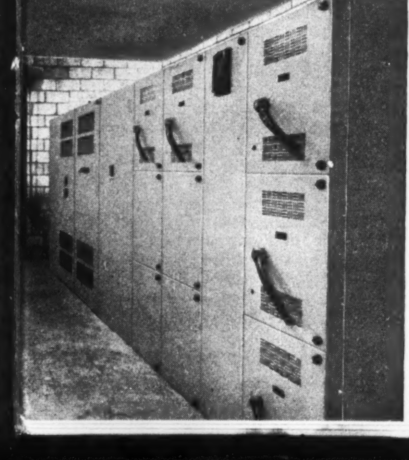

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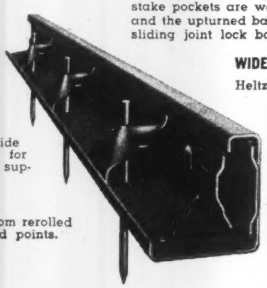
ANSWER: Heltzel steel forms because they are rigid and joint-locked to carry heaviest equipment without wobble They last for job after job of rugged use.

FIVE RIGID SUPPORTS PER FORM
Only Heltzel makes a form with five positive and rigid tread supports per form. The three stake pockets are welded to the lip of the tread and the upturned base flange. At each end, the sliding joint lock bolsters the joint.

UPTURNED FLANGE
Only Heltzel provides 50% extra strength with each form, by incorporating the upturned flange as standard design.

EXCLUSIVE STAKE POCKETS
Only Heltzel makes this wide protected-type stake pocket for sure-grip wedging, and rigid support of the tread.

STAKES
Only Heltzel makes stakes from rerolled rail material with hot forged points.



WIDE TREAD
Heltzel makes a form with 2½" tread for greater traction, and for the greatest rigidity and strength.

HOT PRESSED JOINT LOCK
Only Heltzel makes a joint lock, hot pressed from ¼" plate, with driving ears projecting 3½" from the form.

Heltzel
BUILDS IT BETTER
The Heltzel Steel Form & Iron Company
Construction Equipment Since 1910
WARREN, OHIO
Flex-Plane

READER COMMENT

(*Continued from p. 7*)

may closely approximate such a column) and a flexible, free-standing column, which supports the pin-ended column on the free end.

Fig. 1(a) shows schematically the basic structural system. Fig. 1(b) shows the forces developed and the resulting deformations caused by any (even an infinitely small) relative displacement *d* of the two hinges. Such a movement necessarily results from the effect of temperature. The equilibrium of the upper column and the deflection of the lower column may be expressed in two equations, respectively, as follows:

$$d = \frac{Hh}{P} \text{ and } d = \frac{HL^3}{3EI}$$

The critical load P_c for the system may be obtained from this equation.

$$P_c = \frac{3EIh}{L^3}$$

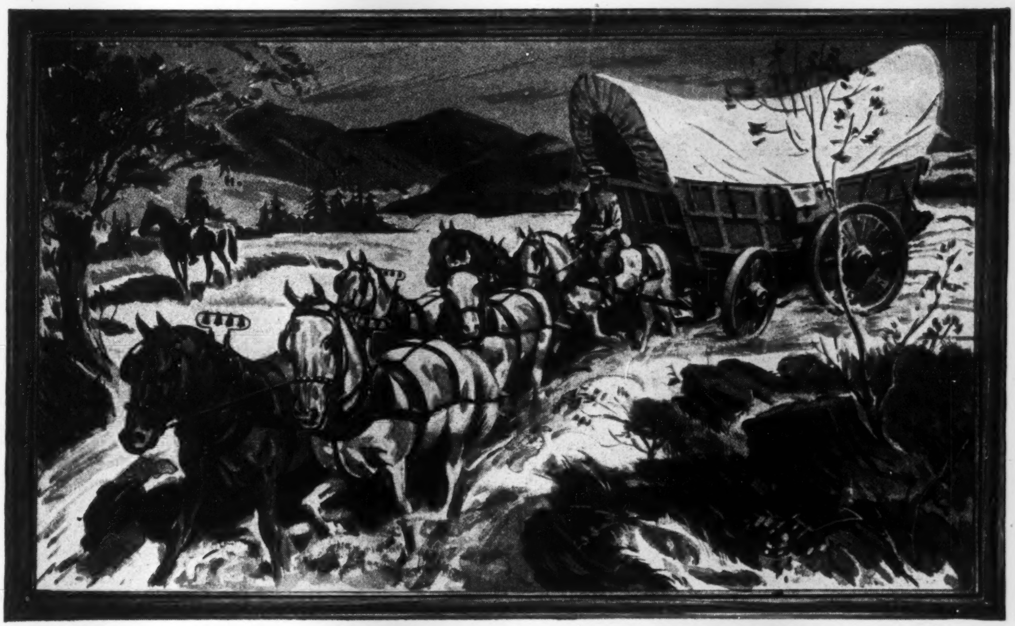
It should be noted that the critical load is independent of the initial displacement, *d*, and hence any infinitely small displacement initiates a rapidly progressing failure.

• **Similar cases of instability**—This represents a condition in which initial displacement with resulting thrust causes a deflection, which in turn augments the initial displacement and resulting thrust causing still greater deflection. The phenomenon is similar to the aerodynamic instability of structures, where, after some initiating force has started oscillations, such oscillations of the structure itself repeatedly augment the preceding aerodynamic forces, cycle after cycle.

This stability problem is also analogous to that commonly encountered, and unquestionably sometimes with disaster, when a falsework bent is supported upon a group of flexible (unbraced or inadequately braced) piles. The bent corresponds to the upper column and the piles to the lower column in the preceding basic problem. Usually the bent is substantially pin-ended, and relative displacement of its two ends may result from the effect of temperature, erection stresses, improper erection or other conditions. The resulting thrust on flexible piles may cause collapse. I am convinced that several major disasters have resulted from such a system of falsework.

• **Critical load computed**—Rockers with more than one center of rotation may introduce many variables. One typical type is shown in Fig. 2(a). The travel of the rocker, development

(*Continued on p. 16*)



Conestoga Wagons had

POWER STEERING...

Why not Modern Trucks?

Thousands of these sturdy wide-wheel wagons carried freight between the Atlantic Coast and Pittsburgh, the gateway to the "Ohio country", in the 1830's and 40's. The driver rode the left wheel horse and did not steer by muscle power. He signalled the left lead horse with a single rein . . . shouted "gee" and "haw". If a wheel hit an obstruction or a softer spot than usual, the horsepower took care of it . . . not the driver's back and shoulders. Flat tire trouble was eliminated by having them all flat (iron) in the first place.

The ordinary modern motor truck is far superior to the Conestoga In every way except steering. In eliminating the 6-horse teams with jingling bells, we have loaded the work of steering on the driver himself. Without power steering he has to expend physical effort that at times would have daunted even the rough and ready Conestoga men. Drivers tire, slow down, become less efficient . . . more prone to have accidents.

When equipped with Vickers Hydraulic Power Steering, the heaviest truck can be steered under even the most adverse conditions (ruts, soft shoulders, flat tires, etc.) with only a light finger touch on the steering wheel. Drivers remain fresh, efficient, safe. Get additional information by asking for Bulletin M-5100.

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DIVISION OF THE SPERRY CORPORATION
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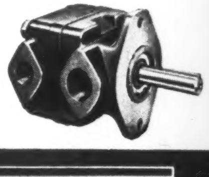
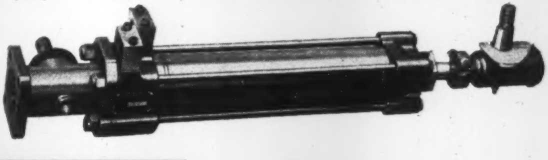
Application Engineering Offices: **ATLANTA • CHICAGO (Metropolitan) CINCINNATI • CLEVELAND • DETROIT • HOUSTON • LOS ANGELES (Metropolitan) NEW YORK (Metropolitan) • PHILADELPHIA • PITTSBURGH • ROCHESTER ROCKFORD • ST. LOUIS • SEATTLE • TULSA • WASHINGTON • WORCESTER**





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POWER STEERING
Is Effortless, Positive and Shockless

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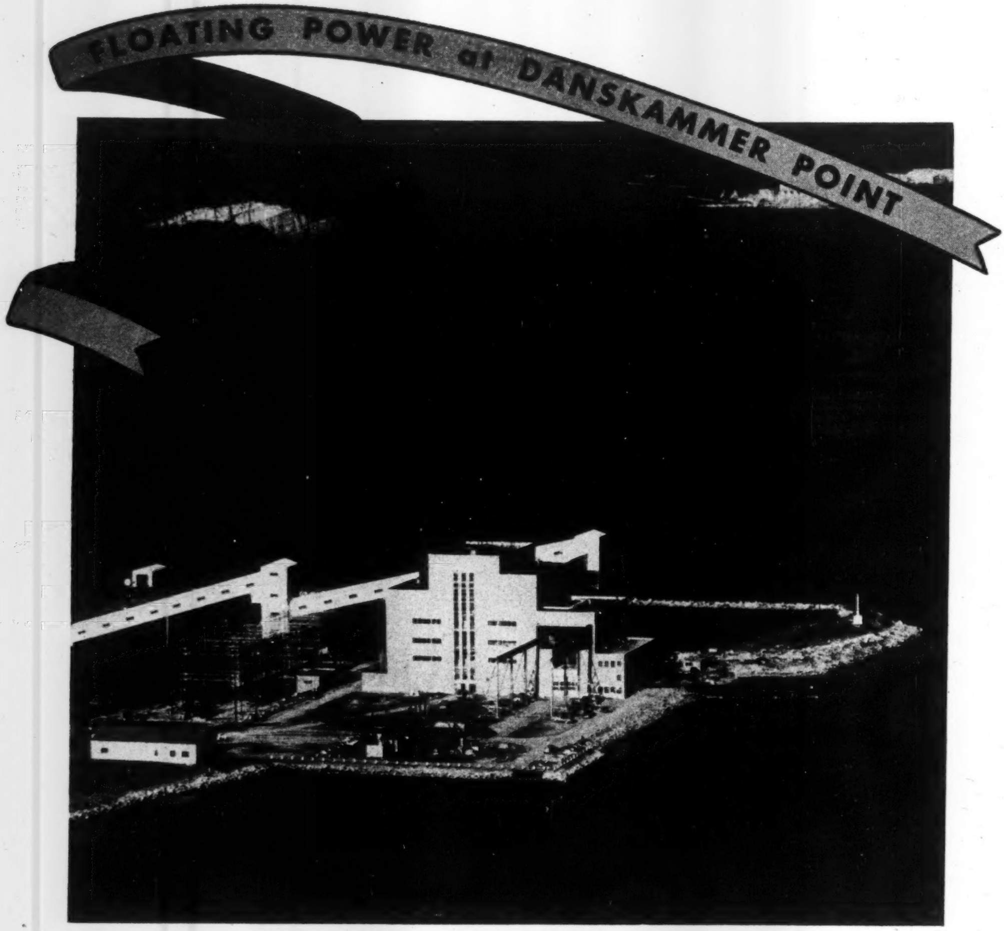

Ingalls fabricated and erected the steel for this water-bound power plant which rests on a huge flat shelf jutting out into the Hudson river 58 miles north of New York City. It is the first unit of the Central Hudson Gas & Electric Corporation's Danskammer Point steam station, for which Burns & Roe, Inc. were the engineers.

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Plants: Birmingham, Ala., Verona, Pa., North Birmingham, Ala., Pascagoula, Miss., Decatur, Ala.

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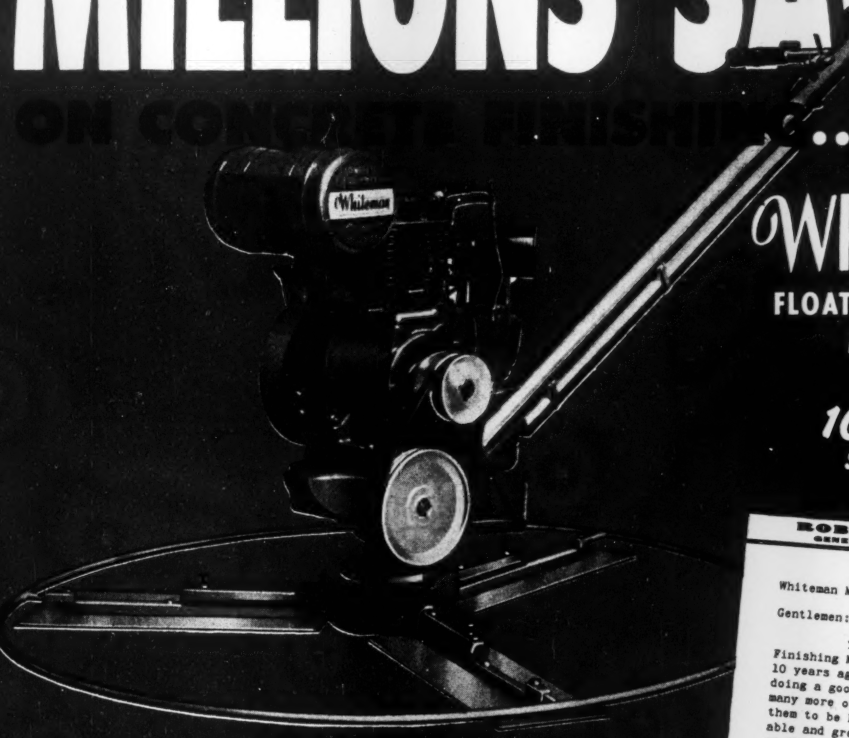

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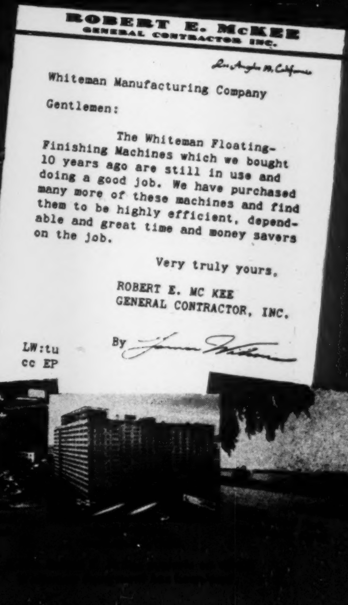
Whiteman

FLOATING-FINISHING MACHINES

IN USE

10 YEARS!

STILL GOING STRONG



ROBERT E. McKEE
GENERAL CONTRACTOR INC.

Los Angeles [illegible], California

Whiteman Manufacturing Company

Gentlemen:

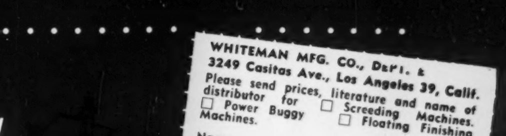
The Whiteman Floating-Finishing Machines which we bought 10 years ago are still in use and doing a good job. We have purchased many more of these machines and find them to be highly efficient, dependable and great time and money savers on the job.

Very truly yours,

ROBERT E. MC KEE
GENERAL CONTRACTOR, INC.

By

LW:tu
cc EP



During the past 13 years [illegible] Floating and Finishing Machines have [illegible] in construction costs for contra[illegible] Constantly improved over the [illegible] "J" is finer, more powerful than [illegible]" spider arms maintain uniform pressure [illegible] width of trowels. Patented "snap-on" [illegible] Both sides of finish trowels are [illegible] New Whiteman centrifugal clutch [illegible] automatically. Trowel pitch is easily a[illegible] machine is in motion . . . another [illegible] feature. Gas engine or electric motor. [illegible] Model "J" for smaller operations. [illegible] on concrete finishing! Send coupon for [illegible]

WHITEMAN MFG. CO., Dept. E
3249 Casitas Ave., Los Angeles 39, Calif.

Please send prices, literature and name of distributor for ☐ Screeding Machines. ☐ Power Buggy Machines. ☐ Floating Finishing

Name ....

Firm ....

Address ....

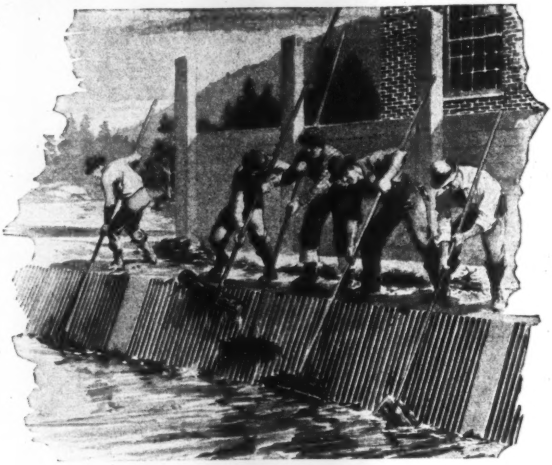
City .... Zone.... State........

Whiteman

THE LEADER IN CONCRETE EQUIPMENT

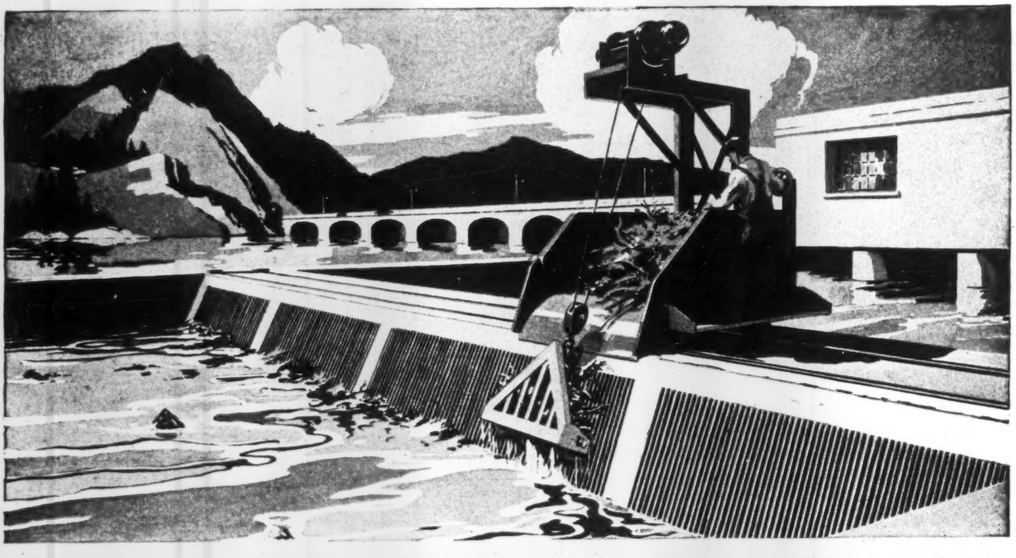
[illegible]

Save COSTS *and* Cut LOSSES *with the* LEONARD Trash Rack Rake



MAKE MONEY by saving it! These pictures tell the story - how back-breaking work is eliminated and Racks kept clearer of leaves and other debris, by the use of this simple device which automatically assures higher turbine or pump performance. Write for Bulletin 146 - now!

If It's Hydraulics -
Put It Up to Us!



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YORK, PENNA. U.S.A.

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puts Valve Operation in the hands of Key Workers

Valves of all types up to 120'' diameter can be opened and closed easily and quickly with LimiTorque. Conveniently located push button stations are the control centers from which remotely located valves, or those in high or hazardous locations may be operated by highly responsible employees. It is unnecessary to entrust important valve operations and valuable equipment to men chosen for brawn alone. Indicating lights show at a glance the exact position of each valve.

Because of its adjustable valve seating feature, LimiTorque will prevent damage to valve parts due to overload. LimiTorque may be actuated by any available power source such as electricity, water, gas, oil or air. Your valve maker can supply LimiTorque.

Engineering advice will be given on your valve problems, or write for [illegible]

LIMITORQUE CONTROL

OUR 60TH ANNIVERSARY

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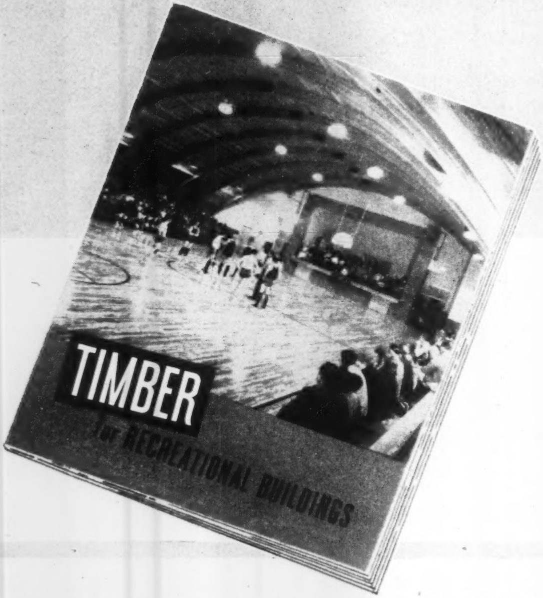

Now that you can go ahead with recreational buildings again, this new 24-page booklet, "Timber for Recreational Buildings", will give you both cost and time advantage to offer an impatient market. It pictures many types of recreational buildings constructed with plentiful lumber, using three popular systems of timber construction — Teco connector, glued laminated and Lamella. It will help you in planning the best type of timber design for your projects.

When specifying connectors and grooving tools, always specify Teco products. Our WEDGE FIT connectors and high-speed grooving tools do the job right.

Use this convenient coupon today for your FREE booklet.

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COMPANY..........
STREET.......... CITY.......... STATE..........
ENR

READER COMMENT

(*Continued from p.* 10)

of forces and the resulting deflections caused by any relative displacement of the bearing surfaces of the rocker are shown in Fig. 2(b). Omitting negligible influences such as the very small eccentricity of application of the load on the lower column, the derivation of the critical load is as follows:

$$d = \frac{Hh}{P} \text{ and } d\left[1 + \frac{r}{e}\right] = \frac{HL^3}{3EI}$$

$$P_c = \frac{3EIh}{L^3}\left[1 + \frac{r}{e}\right]$$

The formula shows that the critical load increases with decreasing values of e, becoming infinite when e equals zero as in the case of a round roller. This indicates that in such a case even an infinite vertical load would develop no thrust, and the Euler load would become the governing critical load.

The punishing and catastrophic effect of the thrust of the rockers may be comprehended by the following comparison of the critical loads for a column of the bent in the Sullivan Square viaduct that failed:

The Euler load for the column is approximately 1,980,000 lb.

The critical load for the column, loaded with rockers of the type installed, assuming perfect design, fabrication and construction in all other features, and no development of thrust by other influences such as temperature change, was only 204,000 lb, or only about 10% of the Euler load. Therefore, the actual critical load for this column as constructed and acted upon by various and ever-present outside influences would be considerably less.

A flexible column and a rocker of the type used are each, individually, sound structural units. To use them in combination, without extreme precautions, only invites disaster.

RAY M. BOYNTON
Associate Engineer
D. B. Steinman, Consulting Engineer
New York, N. Y.

Likes toll road story

Sir: Your article entitled "A New Look at Toll Roads" (ENR June 19, p. 21) is a very impressive document. It seems to me that you have done an excellent job in pin pointing the problems of this subject and particularly the fact that public roadbuilding agencies have just not taken care of the traffic needs and that the users and taxpayers are paying an exorbitant amount of money to get their requirements taken care of by toll roads.

JULIAN R. STEELMAN
President
Koehring Co., Milwaukee, Wis.

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LADISH 12" XH WPB (L) BMR

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TO MARK PROGRESS

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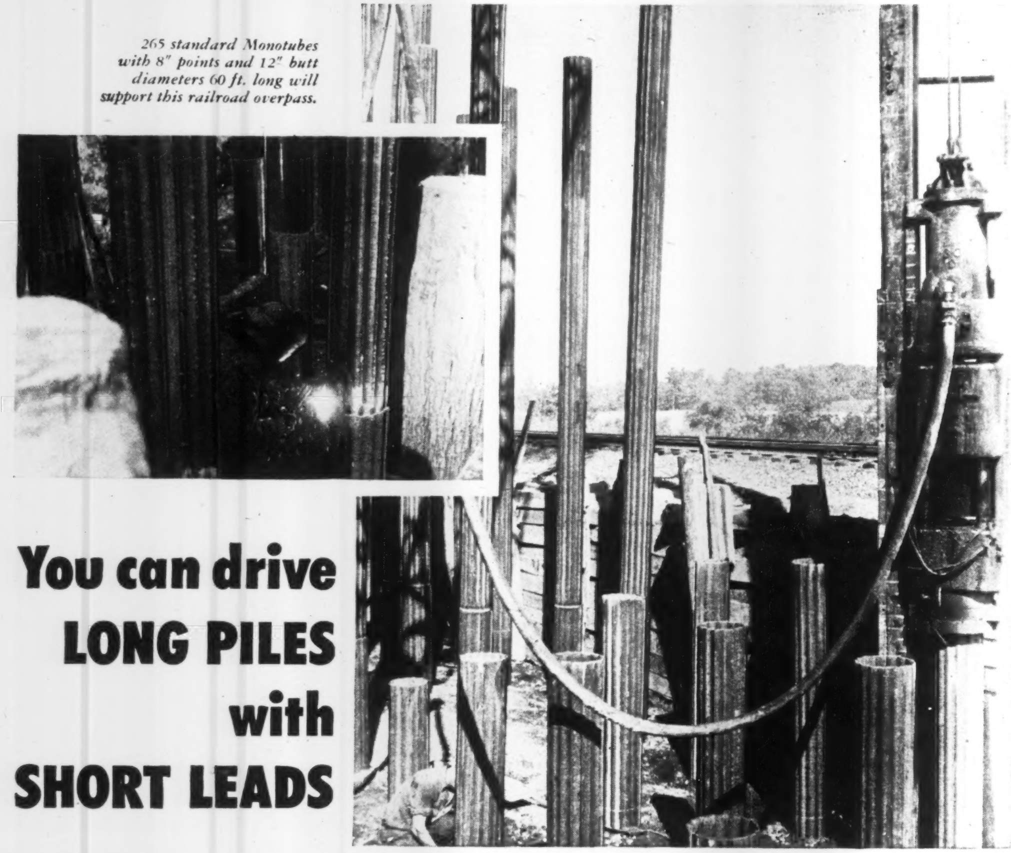


265 standard Monotubes with 8" points and 12" butt diameters 60 ft. long will support this railroad overpass.

You can drive LONG PILES with SHORT LEADS

. . . IF THEY'RE TAPERED AND FLUTED STEEL MONOTUBES!

THIS Ohio State Highway Department overpass foundation is a good example of how Monotubes simplify pile driving and get you *on-and-off the job faster!*

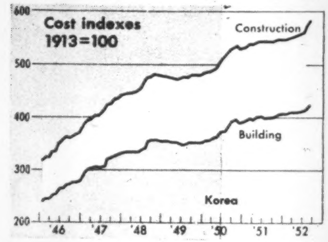
First, only a light mobile rig, with short leads, was needed to drive these rugged, *cold-rolled* Monotubes to the full 60-foot penetration. Tapered and fluted Monotube bottom sections were driven initially—then the upper extension sections were set and welded into place. During assembly and welding operations driving continued on other piles.

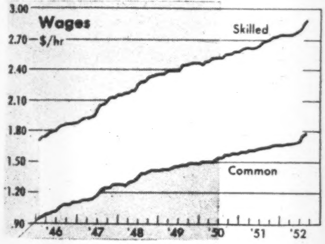
On-the-job extendibility, quick cutoff and easy handling of the light weight Monotubes are saving time and money for builders and contractors everywhere . . . under *all* kinds of structures. For complete information, write The Union Metal Manufacturing Company, Canton 5, Ohio.

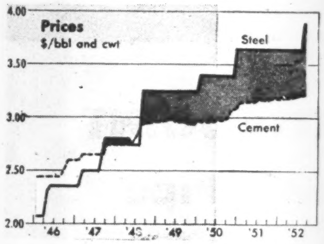
UNION METAL

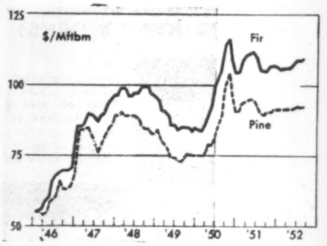
Monotube Foundation Piles

AUGUST CONSTRUCTION SCOREBOARD









ENR INDEXES (1913 = 100), 20-cities' average	1952 August	% Change from last Month	% Change from last Year
Construction Cost	585.19	+2.5	+7.8
Building Cost	423.86	+2.2	+5.9
WAGE RATES, 20-cities' average			
Common	$1.793	+2.1	+9.5
Skilled (aver. 3 trades)	2.885	+1.3	+6.8
Bricklayers	3.193	+1.3	+7.4
Structural Ironworkers	2.832	+1.5	+6.5
Carpenters	2.633	+0.9	+6.5
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.219	+0.2	+1.8
Structural Steel, (3-mill aver.), per cwt	3.910**	+7.1	+7.1
Sand, per ton	2.110	+0.2	+1.0
Lumber, 2x4 Fir, per M. ft. bm.	110.000	+0.4	+5.0
Lumber, 2x4 Pine, per M. ft. b	92.533	+0.2	+2.8
Common brick, per M	31.601	0.0	+1.9
Ready-mixed concrete, per c. y	11.208	+1.4	+2.9
Structural Clay Tile, 3x12x12 per M	151.288	0.0	+2.5

** Incl. 26 cent per cwt subject to readjustment

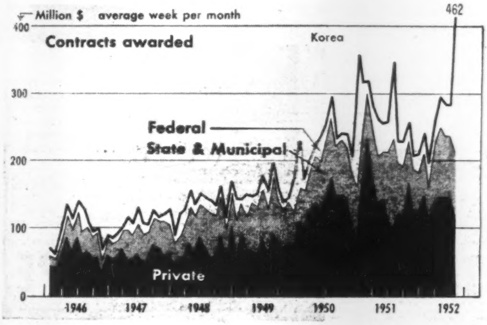
CONTRACTS AWARDED (Millions)	July 1952 (5-weeks)#	7-Mos. (31-weeks)#	% Chg. from '51 July (4-weeks)#	% Chg. from '51 7-Mos. (30-weeks)#
Total U. S. (ENR reported)	$2,310.5	$9,093.2	+34.0	+ 1.6
Private	606.3	4,185.1	+22.2	−11.7
Public	1,704.2	4,908.1	+38.9	+16.6
Federal	1,254.5	2,319.7	+123.9	+10.1
ENR Volume Index, '13=100	904	562	+35.9	− 2.9
NEW CAPITAL (Millions)	(5-weeks)#	(31-weeks)#	(4-weeks)#	(30-weeks)#
Total	$8,029.0	$12,158.9	+1,125.9	+ 83.1
State & Municipal Bond Sales*	239.2	2,040.4	+ 43.7	+ 39.3
Corporate Security Sales	258.2	2,452.5	− 47.2	+ 20.6
Federal (non-federal work)	641.1	775.4	....	+921.8
Federal (federal work)	6,890.5	6,890.5	....	+124.3

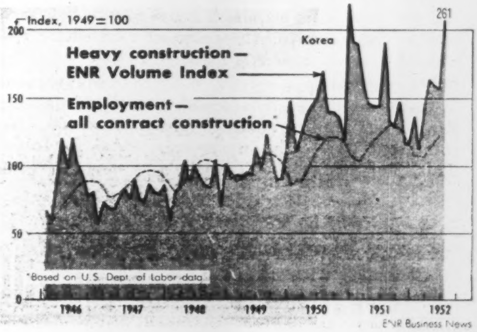
* Excluding public housing

# Computed on Weekly Aver.

MATERIAL SHIPMENTS & LABOR SUPPLY (Millions)	1952 May(M) June(J)	1952 5-Mos.(5) 6-Mos.(6)	% Chg. from '51 Mo.	% Chg. from '51 Yr.-Cum.
Cement, bbls, Bu. of Mines	23.282(M)	88.097(5)	− 6.4	+1.3
Fabr. Struc. Steel, tons, AISC	.125(J)	1.361(6)	−51.4	−0.6
Lumber, mil. ft. bm., NLMA	3.031(M)	15.100(M)	−12.7	−8.3
Lumber Prod., mil. ft. bm., NLMA	3.064(M)	14.960(M)	−19.2	−8.3
Contract Constr. Employ., BLS	2.661(J)	2.417†(J)	− 0.9	−0.6

† Average





ENR Business News

Goes together fast—and stays tight!

. . . it's the new RING-TITE JOINT used with Transite Sewer Pipe

NO NEED TO LET ordinary time-consuming methods of making joints slow down your sewer line jobs—not when you install Transite* Sewer Pipe with its new Ring-Tite Coupling.

Just a simple assembly operation with a mechanical coupling puller and this new "packaged" joint is ready for business! No jointing compounds to bother with . . . no heating equipment . . . no special skill is required. And you can check each joint for proper assembly as soon as it is made—*before backfilling.*

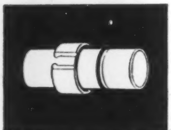
Moreover, this easily assembled Ring-Tite Coupling makes a tight joint that *stays* tight in service. This, plus the fact that Transite's long 13-foot lengths mean *fewer* joints in the line, cuts infiltration to a minimum. As a result, treatment costs are reduced, plant capacity conserved for future needs.

Another money-saving advantage of this asbestos-cement pipe is its high flow capacity (Manning's n =.010). This often permits flatter grades and shallower trenches — a particularly important economy where pipe is laid at or below the ground water line or where rock excavation is required.

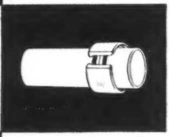
May we send you more complete data? Address Johns-Manville, Box 60, New York 16, N. Y. Ask for folder TR-103A.

*Transite is a registered Johns-Manville trade mark

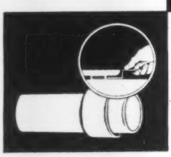
HERE'S HOW THE RING-TITE JOINT WORKS:



◄ **Start of assembly.** Two rubber rings and a Transite sleeve (cut away to show position of the rings) are placed on one of the two pipe ends to be joined.



► **Final position.** Sleeve centered over both pipe ends, with the rubber rings tightly compressed between sleeve and pipe.



◄ **Checking joint** for proper assembly. This is done with a simple gauge immediately after the joint is made . . . *before backfilling.*

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville TRANSITE SEWER PIPE

LID OFF ON COPPER AND ALUMINUM—As predicted in Engineering News-Record last week (page 21, the National Production Authority this week lifted restrictions on use of aluminum and copper in construction. The ban on use of copper and aluminum in drains, gutters, down spouts, unit heaters, store fronts, and in ornamental metal work is removed. Builders may now self-authorize these quantities per project in each quarter:

Industrial buildings—4,000 lb of aluminum and 5,000 lb of copper, as against former limits of 2,000 lb each; schools, hospitals, apartment houses, houses, public buildings, stores and commercial structures—2,000 lb of aluminum and 1,000 lb of copper, compared to old limits of 1,000 lb of aluminum and 750 lb of copper. Highways—500 lb of aluminum and 500 lb of copper, compared to 200 lb of copper and no aluminum. Houses of one to four-family units—with steel pipe water systems: 275 lb of aluminum and 200 lb of copper; with copper pipe water systems, 275 lb of aluminum and 400 lb of copper: if a forced hot water heating system is used, another 200 lb of copper is allowed, and additional 500 lb of copper if radiant heating is used.

HERE COME HOMEBUILDERS—That worry of the general contractors about the possible emergency of homebuilders as a separate bargaining agency with labor (ENR July 10, p. 19) is taking on real substance. The new Construction Industry Stabilization Commission will include (as an alternate member) Joseph A. Vatterott of St. Louis, immediate past-president of the St. Louis National Association of Home Builders group, Chairman of NAHB's Employer-Employee Relations Committee. Also (see p. 30) some of NAHB's arguments in favor of separate treatment of their labor were embodied in the outgoing Wage Stabilization Board's recommendations to the incoming board. Under new rules, homebuilders would be permitted to pay premiums, piece rates and bonuses where that was done in the four months prior to July 31, 1950.

FULL JETS ON PRICES—Flying saucers weren't the only things zooming upward over Washington. Triggered by the steel price rise (ENR July 31, p. 19) that had already taken ENR's Construction and Building Cost Indexes to new highs, aluminum prices and other were zooming upward too. The aluminum industry is getting approval for a 5.5% increase (that would be one cent a pound on raw aluminum taking it from 18 to 19 cents, 5% on fabricated products).

ST. LAWRENCE MOVE AFOOT—New York State's three-year try for authority to work with Ontario on developing the St. Lawrence River for hydroelectric power and navigation has a new lease on life. (ENR July 10, p. 24.) Turned down once (in 1950) by the Federal Power Commission, New Yorkers worked long and hard on FPC, finally got this:

FPC agreed to reopen consideration of New York's application; FPC and the state asked the District of Columbia Court of Appeals to dismiss the state's two-year old appeal from the original FPC decision.

What New York wants to do is build the U. S. side of the proposed 2-million horsepower plant, but Washington bureaucrats did not want control of that power to get out of their hands.

What observers are guessing now is that political considerations are behind the change of front by FPC—normally Republican New York State (and heavily Democratic New York City) might be pleased enough with a go-ahead on the project to be grateful in November. Canada has already pledged itself to undertake its part of the project.

Where the *other* se[illegible] also count – it's always BAYLEY WINDOWS

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Steel channeled to defense throttles construction starts

Impact of the steel strike on construction began to clarify this week as the government began routing a big share of new steel output under a label "for defense only."

With the backing of the National Production Authority, the Defense Department and other mobilization agencies, Munitions Board Chairman J. D. Small assigned 30 special officers to stay at steel mills to see that the military gets first crack at new steel produced. Their mission is to meet the intense competition developing from civilian consumers.

Practically no new major construction projects will be permitted to start during the fourth quarter of 1952. But most jobs already under way will get at least a part of the steel they need to continue.

That's the effect of new standards just adopted by the National Production Authority for passing on applications for new starts and for allotments of metal during the quarter starting Oct. 1. The step was one of several adopted in the last few days by the controls agency in an effort to untangle the snarl in steel supplies.

Like similar regulations, the new construction standards are designed to channel additional steel into the defense production program at the expense of non-military production and construction, according to NPA boss Henry H. Fowler. The armed forces, which are taking about one million tons of steel per month before the strike, figure they'll need about twice that much during the last quarter of the year to get arms output back to pre-strike levels. Washington controls officials have decided to give the services this extra metal.

• Priorities set—For purposes of passing on both new starts and allotments, Fowler's NPA has set several categories of industrial and other construction for priority purposes. The industrial classifications, in order of priority, are:

1. Those necessary for defense; 2. those approved under the government's industrial expansion goals; 3. all other industrial projects.

Commercial and other types of construction are classified thus:

1. Projects critically needed in defense areas; 2. those for which cancellation of allotments would prove a hardship; 3. projects in areas of substantial unemployment, and religious and public welfare and safety projects; 4. all others.

SETS UP PRIORITIES—Henry H. Fowler, Defense Production Administrator.

A reserve of steel will be set aside to meet the needs of Class One industrial projects which already are under way. New starts in this category will get steel if certified by the Munitions Board or an industry division of NPA as essential to defense (arms) production.

That will mean that other projects already approved by NPA for starts in the fourth quarter will have to be deferred until next year. They will get materials to start only if there is metal left over after needs for critical new defense starts and continuation of other projects are met.

• Military set-aside—At the same time NPA officials backed up earlier regulations to put steel into military, atomic energy and machine tools production and construction with the establishment of mill reserves for these programs and for the components that go into them previously, they ordered the mills to fill all second and third quarter orders for these programs by Nov. 30.

For the fourth quarter, the mills are required to set aside varying percentages of each shape and form of steel they produce for military, AEC and machine tools and components.

This puts a further squeeze on construction because it puts a freeze on sizeable proportions of the types of steel needed by the industry. For example, the structural steel set-asides run above the 16.9% of supply assigned to defense, AEC and tools in the first quarter of this year and close to the 17.7% they got in the second quarter.

Since the set-asides must be ready for delivery by Dec. 31, at latest, that means about a full quarter's supply of structurals for the three priority programs must be taken from about two months production at the mills. The mills will scarcely catch up on second and third quarter orders, even for priority projects, for another month.

Here are the percentages of key types of steel ordered set aside for the fourth quarter:

Structural shapes, heavy	18%
Structural shapes, other	17%
Plates, sheared and U. M.	25%
Plates, strip mill	20%
Bars, hot rolled	27%
Bars, reinforcing	20%
Standard pipe and couplings	9%
Mechanical tubing, seamless	35%
Mechanical tubing, welded	20%
Wire nails and staples	5%
Wire, rope and strand	15%
Welded mesh	10%
Galvanized sheets	10%

In addition, the set-asides reserve big percentages of monthly production of ships needed for heavy industrial expansion programs—plates, rods, iron and steel castings. That means that government-approved expansion in industries like aluminum, already two months behind schedule for lack of steel, and chemicals, electric power and oil, will fall even farther behind.

The percentages of production ordered set aside for priority programs are minimum reserves, officials said. A mill cannot refuse an order for defense, atomic energy or tools even if it will bring his total scheduled deliveries on such order to more than the minimum percentage set-aside for a particular type of steel. In that case, he must defer delivery on whatever non-priority orders are necessary to meet the priority order.

In spite of these priorities and the tightening of controls, NPA officials generally foresee no serious drop in the volume of construction activity scheduled for this year—about $32 million.

Dr. D. J. Bergsma, New Jersey health commissioner, seeks pollution enforcement.

Time out requested in pollution dispute

More time has been requested by three New Jersey townships in their dispute with the Middlesex Valley Sewerage Authority over joining in a $30-million Raritan River trunk sewer project.

Outright refusals to join in the plan have come from three industries with plants in the area, Calco Chemical Division of American Cyanamid, Johns-Manville and du Pont.

The request for more time was made at a meeting July 31 between New Jersey's Governor Driscoll, the authority and representatives of the Somerset County townships, Calco and Johns-Manville.

The Somerset County group has complained that the trunk sewer project would divert too much water from the northern Raritan valley. They favor a joint authority combining water and sewage control.

In refusing to take part in the project, Calco and Johns-Manville have found themselves involved in legal proceedings with the New Jersey Department of Health.

A public relations battle has highlighted the dispute, with the authority centering its appeal on the desirability for a clean Raritan, with fishing and swimming. The Somerset County townships and industries argue for a combined water supply and pollution control authority, stressing their ability to handle their own problems.

An alternative proposal of a separate, additional, sewerage authority for Somerset County has so far been greeted with moderate interest.

Reclamation plans charted

The Bureau of Reclamation last week announced plans to speed a $240-million construction program during the fiscal year ending next June 30. The new program not only provides funds for 73 projects under construction, but $15 million for ten new projects. At annual five-day conference in Cody, Wyo., the Bureau of Reclamation allocated construction funds on a basis that aims for full utilization of the money by June 30, 1953.

Time and again congressional committees have pointed to the bureau's failure to spend appropriated money as a good reason for cutting new appropriations. Reclamation chiefs called on their staffs last week to correct that condition.

With a $49-million carryover from fiscal 1952, the bureau has more than $225 million to expend on construction this year. Last year it expended $213 million, less than 80% of the available construction funds.

That performance satisfies nobody in the Reclamation organization. Before Korea, the rate of accomplishment was as high as 94% in fiscal 1949. Expenditures were large then, amounting to a little more than $210 million in that year, but the national emergency had not yet interposed difficulties in changed programs, materials allocations and slow deliveries.

• To push harder—Since 1949, progress in terms of expenditures each year has run less than 80% of available funds. The bureau will push hard this year to boost the rate of accomplishment to a high level. Effects of the steel strike make the task hard.

Total construction funds available for reclamation projects this year exceed actual expenditures in any past year except 1950, when the Bureau spent $272 million. With money for ten new projects (ENR, July 31, p. 27), the program is breaking away from the ban that barred new starts except for power purposes.

In approving fiscal 1953 construction funds, congressional committees designated specific amounts for the various projects. But they said in their reports that the carrying out of an efficient construction program will require flexibility in applying the funds. Accordingly, they confirmed and even increased the authority for interchanging funds between projects.

Bureau officials made minimum use of this authority in laying out their program for construction last week.

• Projects described—The new program will provide irrigation water service for an additional 267,000 acres of land and the instalation of 346,000 more kw of hydroelectric capacity. This will bring the total area supplied with water from Reclamation projects to approximately 6.4 million acres and the total power supplied to approximately 4.6 million kw.

The Missouri River Basin will get a total of $69 million this year, which will include four new units: Rapid Valley in South Dakota, the lower Mairas Unit in Montana, the Missouri Diversion unit in Montana, and North Dakota, and the Webster unit in Kansas. (For more on Missouri Basin Projects, see page 102).

Other big projects budgeted for heavy expenditures are Central Valley in California, $30 million; Columbia Basin in Washington, $23 million; Colorado-Big Thompson in Colorado, $21.6 million; Hungry Horse in Montana, $12.7 million, and Palisades in Idaho, nearly $11 million.

Bridge to span Delaware

Gov. Alfred E. Driscoll of New Jersey and Gov. John S. Fine of Pennsylvania last week chose an $87-million bridge instead of a $107-million tunnel to cross the Delaware River between Philadelphia and Gloucester, N. J.

The decision Thursday ended a long controversy over the type of crossing.

The newly created Delaware River Port Authority announced on the following day that construction of the anchorages and tower caissons would start next January.

Bridge plans have been filed with the U. S. Army Engineers in Philadelphia. A hearing is scheduled for Sept. 4 in the U. S. Customs House in Philadelphia on whether the proposed horizontal and vertical clearances of the bridge will be adequate. Plans show the bridge will measure 3,940 ft from anchorage to anchorage and will have a main tower span of 2,000 ft. It will be supported by a 22 in. cable with suspenders. Clearance at the center of the span will be 150 ft.

It will be financed by 30-year revenue bonds to be issued by the Authority, and secured by the surplus revenue of the present bridge and the tolls from both crossings. Advertising for bids for purchase of the bonds will be authorized shortly.

The new bridge, which will connect Passaic St., Gloucester City, with Packer Ave., Philadelphia, is expected to divert peak traffic from the present Delaware River Bridge load of 27 million vehicles a year.

Salary Stabilization Board defines professional engineer and architect

New definitions of what is a "professional engineer" and a "professional architect" have been written by the Salary Stabilization Board as a result of Congress having removed from stabilization controls the wages, salaries and other compensation "paid to professional engineers employed in a professional capacity" and "paid to professional architects employed in a professional capacity by an architect or firm of architects engaged in the practice of his or their profession."

Congress took that action on June 30 at the time it amended the Defense Production Act to extend its life to April 30, 1953. On July 1, the Salary Stabilization Board issued its interpretation No. 12, covering engineers, so that employers of engineers would be able to determine which of their employees now are exempt from the stabilization provisions of the act, and on July 22 it issued interpretation 14 covering architects.

• Professional engineer defined—Interpretation 12 defines a "professional engineer" as follows:

"(A) A professional engineer is a person who, by reason of his special knowledge of the mathematical and physical sciences and the principles and methods of engineering analysis and design, acquired by professional education and practical experience, is qualified to apply such special knowledge for the purpose of rendering professional services or accomplishing creative work, such as consultation, investigation, evaluation, planning, design, or supervision of construction for the purpose of assuring compliance with specifications and design in connection with structures, machines, processes, works or projects.

"(B) A person is qualified as a professional engineer by reason of his professional education, if he holds a professional engineering degree from a college, university or institute of technology, authorized under the laws of the jurisdiction in which it is located to grant academic degress in professionnal engineering.

"(C) A person licensed or registered to practice as a professional engineer in any state, territory, or possession of the United States or in the District of Columbia is qualified as a professional engineer."

• Positions not covered—Interpretation 12 goes on to describe types of work not covered by this definition of professional engineer. Not covered are persons engaged as technicians or artisans (no matter how highly skilled), advisors on sales promotion, physicists, chemists or mathematicians in activities closely related to professional engineering, junior engineers or engineering assistants.

The interpretation states further that the exemption does not apply to "a person qualified as a professional engineer" whose work "does not involve the duties or responsibilities of a professional engineer."

• Professional capacity—As the amendment to the National Production Act said that the professional engineers exempted from wage or salary control must be employed in a professional capacity, the SSB, in its interpretation 12, calls attention to an earlier act of Congress defining "professional capacity."

That definition is too long to reproduce in full here. In summary it says that a man is employed in a professional capacity when his primary duty (80% of his time) is devoted to work which requires knowledge of an advanced type in a field of science acquired by a prolonged course of specialized instruction as distinguished from a general academic education, which is original or creative in character, which requires consistent exercise of discretion and judgment, and is predominently intellectual and varied in character, as opposed to routine mental or mechanical.

• Professional architect—The WSB definition of a "professional architect" is noteworthy because it is much more restrictive than its definition of a professional engineer.

"A person is qualified as a professional architect if he is licensed or registered to practice as such in any state, territory or possession of the United States or in the District of Columbia. Candidates for registration as professional architect are not professionnal architects."

To be exempt from the stabilization provisions of the Defense Production Act these "professional architects" must be engaged in a professional capacity, as in the case of engineers, and the same definition of that capacity applies.

Interpretation 14 states further that "unless licensed to practice as professional architects, architectural designers, renderers, draftsmen, landscape architects, interior decorators, project managers, or other persons who work in close association with architects, are not professional architects."

• Engineer exemption broadened—When exemption of engineers and architects from salary controls was first proposed as a means for helping architectural and engineering firms to hold men who were being offered higher pay by industry, it was proposed to limit the exemption to registered engineers or registered architects employed by such firms. This brought a protest from the many engineers who are not licensed but are employed in professional capacities by large industrial companies such as the airplane manufacturers. As a result the exemption for engineers was broadened to cover all "professional engineers employed in a professional capacity."

• Wage Board yet to act—The Wage Stabilization Board, which has just been reconstituted, has yet to issue its interpretation of the amended National Production Act as it applies to engineers under its jurisdiction.

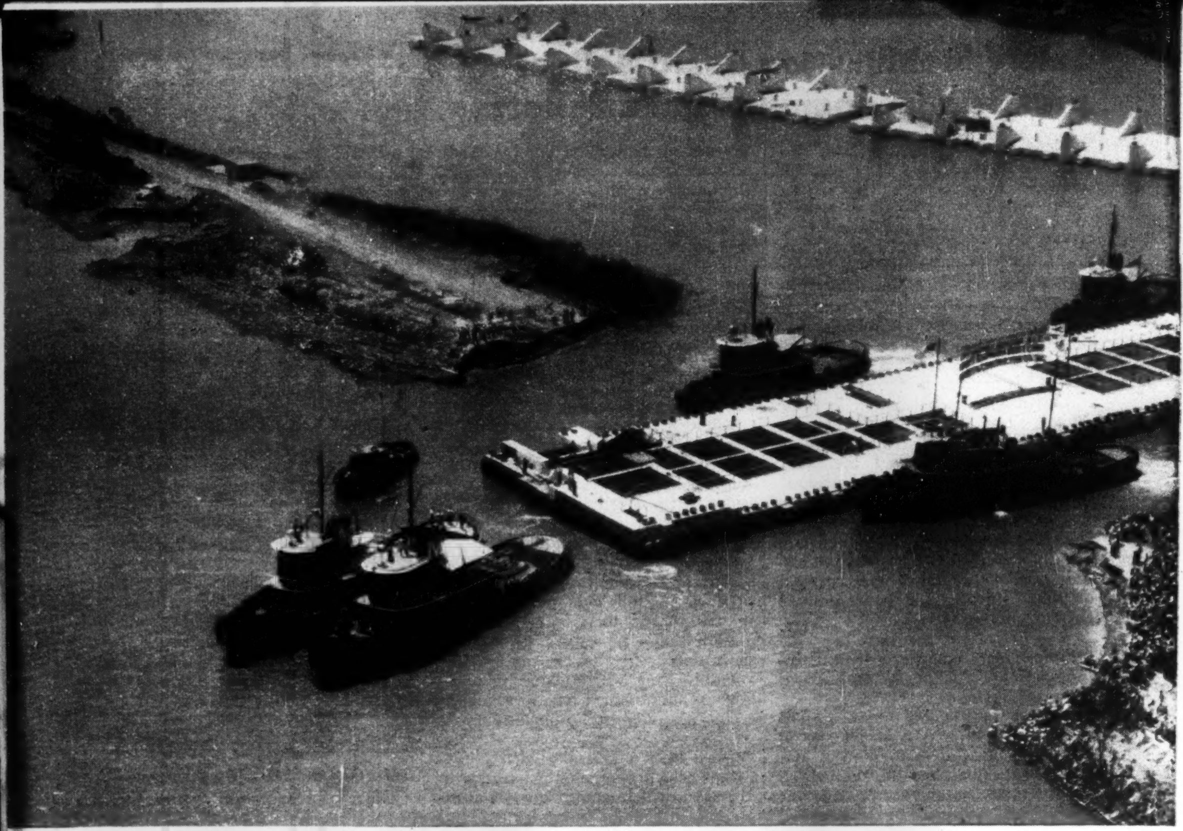
By mutual agreement between the two boards, the Wage Board has exercised jurisdiction over all engineers who bargain collectively with their employers through a regular union or through one of the independent associations such as the Seattle Professional Engineering Employers Assn., or the Engrs. and Architects Assn. in Calif.

Lake Superior Waters damage shore property

Officials of Sault Ste. Marie, Ont., became alarmed last week after water in the St. Mary's River rose more than two feet in 24 hours, heavily damaging shore properties. The river connects Lake Superior with the lower Great Lakes where high water already has caused shore damage of more than $31 million.

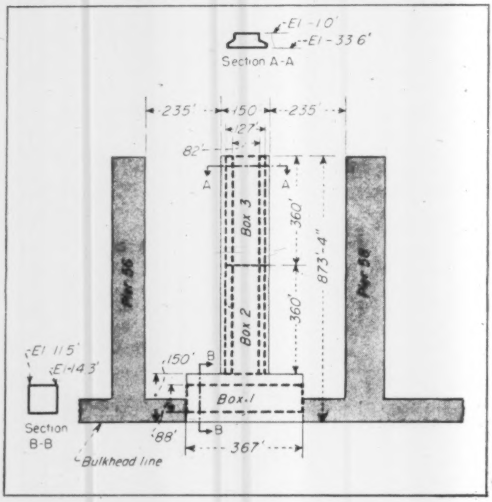
The water rose following the opening Thursday of 16 gates in a compensating dam holding back the water of Lake Superior. The International Joint Commission said the gates were opened because of "extremely high rainfall" in the Lake Superior Basin since July 1. It said peak elevations of Lake Michigan and Lake Huron will not increase if these lakes follow their normal pattern, but it may retard their seasonal drop slightly. The effect on Lakes St. Clair, Erie and Ontario will be negligible.

Ottawa officials said the dam was opened because Lake Superior had reached dangerously high levels which threatened shore communities, roads and railways. Along St. Mary's River after the gates were opened, gravel, sand and coal piles were being eaten away by water. Some power shovel and railroad tracks were submerged. The municipal air port was threatened. Sewage systems were slowed.



EDGING OUT OF DRYDOCK—Weighing 13,800 tons and drawing 14 ft of water, 367x88-ft Box No. 1 begins its 38-mile journey down

Pier 57 foundation box towed to final site



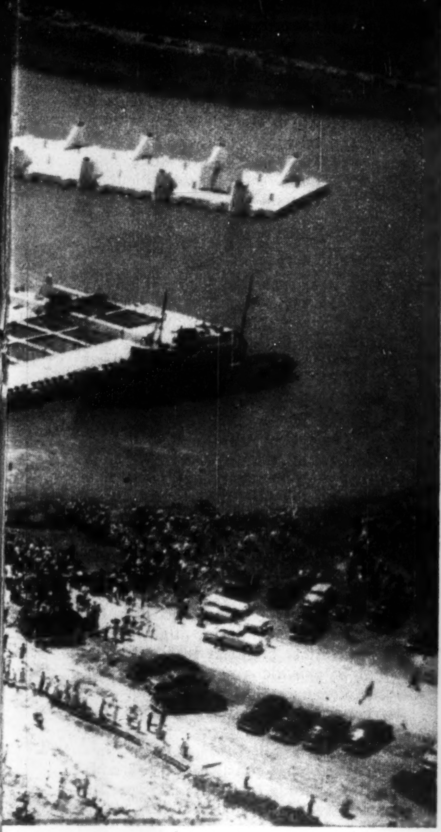
At 1:00 pm Tuesday, July 29, one of Pier 57's three famed buoyant concrete boxes was eased through a narrow breach in the embankment strip of its natural drydock near Haverstraw, N. Y. Thirteen hours and 38 miles later, Box No. 1 lay quietly tied to two pile clusters at its 15th Street location on New York City's west side.

By now, the buoyant foundation should be fixed upon its pile supports. Boxes 2 and 3 are due later.

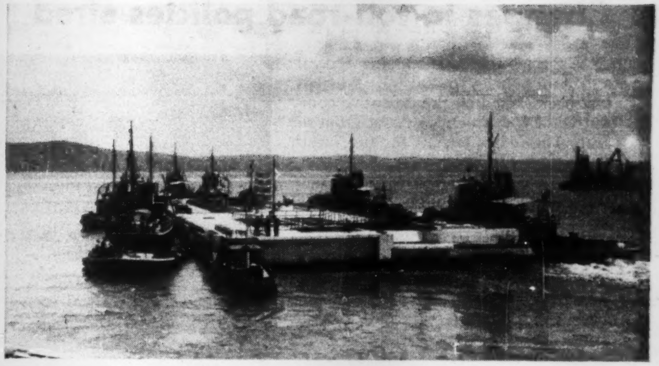
All hands are agreed that the rectangular pontoon 367x88x26 ft and weighing about 13,800 tons, set some sort of speed record for its class. Engineers, evidently feeling they exhibited enough boldness in going ahead with the unique foundation design (ENR Jan. 11, 1951 p 46) and construction (ENR July 31, p 36), conservatively estimated 30 to 40 hours for the trip.

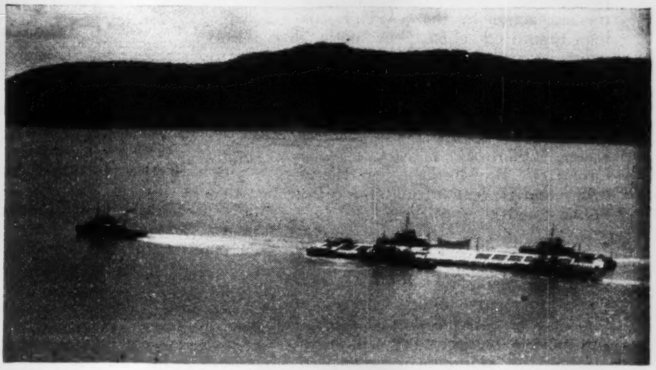
On hand to congratulate Moran Towing Co.'s Capt. John Bassett were: the boxes' designer, Emil Praeger of Madigan-Hyland, consulting engineers; John M. Buckley, Lewis Rabbage and Emil Verpillot, consulting, chief and deputy chief engineer, respectively, for NYC Dept. of Marine and Aviation; and Leonard Ott, project manager for Merritt-Chapman & Scott and Corbetta Construction.

◀ FINAL POSITION—Box 1 rests on piles, Boxes 2 and 3 on consolidated silt. Buoyancy will support 90% of dead load.

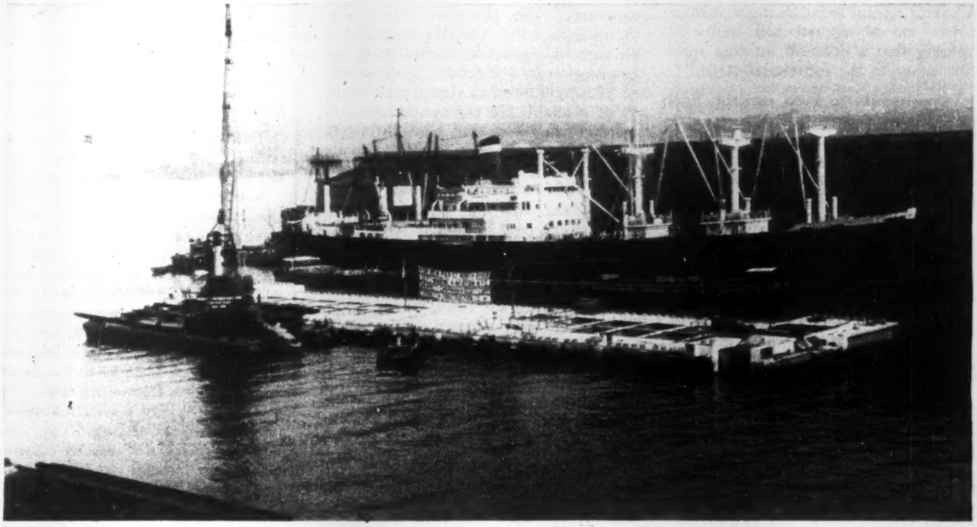


the Hudson River to Manhattan.





FULL SPEED AHEAD—An average 3 to 4 knots was maintained even against the tide, although engineers estimated the six tugs couldn't pull the floating foundation faster than 1½ knots and would have to hold during unfavorable tide.



AT WATERFRONT SITE—Only 13 hours elapsed from start to finish, compared to an expected two days. Box lies moored to pile clusters, literally bone dry inside, awaiting final positioning atop newly driven piles near the bulkhead line.

Changes in toll-road policies aired

A special report discussing federal and state policies toward toll roads has just been issued by the executive committee of the American Association of State Highway Officials for the information of members of the association.

This report makes certain recommendations concerning changes in federal policy toward toll bridges, and proposes a change in federal policy toward free roads that would have as its objective a reduction in the demand for toll financing. However, the executive committee, in making the report public, states that, due to the fluidity of the toll-road problem at the present time, it does not favor immediate action by the AASHO looking toward a change in national policy.

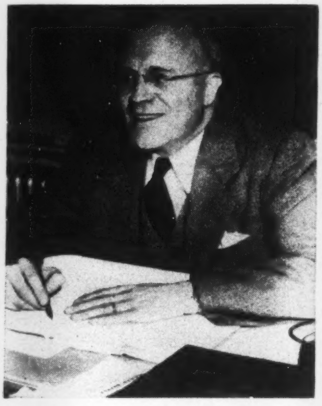
The committee making the report consists of J. B. McMorran (New York), chairman, R. H. Baldock (Oregon), D. C. Greer (Texas), T. J. Kauer, (Ohio), G. T. McCoy (California), F. B. Merrill (New Hampshire), and H. S. Fairbank (Bureau of Public Roads).

• Toll roads an expedient—The still spreading toll-road movements this new report states, are an outgrowth of the requirement of funds in excess of the yield of current revenue sources, and must be recognized as a means of meeting the additional revenue need. The committee is unanimous in its opinion that resort to toll financing is an expedient to be avoided whenever possible. It recommends that the AASHO refrain from taking a position either for or against toll highways, holding that a decision on that question is up to the individual states.

• Departments to keep control—Each state highway department is urged in the report to inform itself fully on methods of toll financing and to insist upon its prerogative to control the planning and execution of any toll-highway project so that authority of the state highway department over elements of the primary highway system shall not be curtailed or divided by the delegation of authority to newly created agencies.

• No change in federal policy—The committee states that the long-standing prohibition against the use of federal-aid funds for construction of highways on which tolls are to be collected should be retained. Relaxation or repeal, it states, would tend to enlarge considerably the mileage of highways for which toll financing would be found feasible.

However, it also concluded that this prohibition is not consistent with the provision of the federal-aid highway act that permits the use of federal-aid funds to build publicly owned toll bridges. Therefore, it recommends that consideration be given to repeal of the latter provision.



REPORTS—J. B. McMorran, New York, chairmanned AASHO committee on toll-road policies.

• Alternative proposed—Having declared itself against the use of federal-aid funds for toll highways, the committee goes on to say that federal aid should serve, if possible, "not only as a deterrent to the excessive employment of toll financing measures, but also as a practical alternative to such measures." To this end, it recommended that the AASHO support the passage of legislation authorizing appropriation by the federal government of $250,000,000 per year for 10 years, to be available for the construction of toll-free facilities on the Interstate System only, under the following terms:

1. To be apportioned in accordance with an appropriate formula, and matched with state funds in the same manner as provided for other federal-aid construction.
2. Apportioned funds to be available for payment to the states either on completion of the construction of approved projects in the usual manner; or, at the election of the state, in reimbursement of the federal pro-rata share of retirement payments on general obligation bond issue funds used for the construction of approved projects.
3. Apportioned funds to remain available for expenditure:
    - a) Such part thereof as the state may elect to use for direct construction expenditure—two years after the year for which the funds are authorized.
    - b) Such part as the state may elect to use in retirement of general obligation bonds—twenty-five years from the date of the authorizing legislation.

• Toll road costs too high—"There is now a clearer recognition of the excessive cost of the revenue-bond financing employed for the earlier toll roads and increasing appreciation of the limitations of that method of borrowing. The advantages of general-obligation borrowing are more widely understood, but pledge of the faith and credit of the state is legally prohibited in some states and in others is discouraged by the difficulties of assuring a sufficient amortizing revenue.

"Where general-obligation borrowing is permissible, the assured availability of federal aid for the retirement of such bonds, issued for the construction of toll-free highways on the Interstate Highway System, would tend to provide a sound and acceptable alternative to the further construction of toll roads."

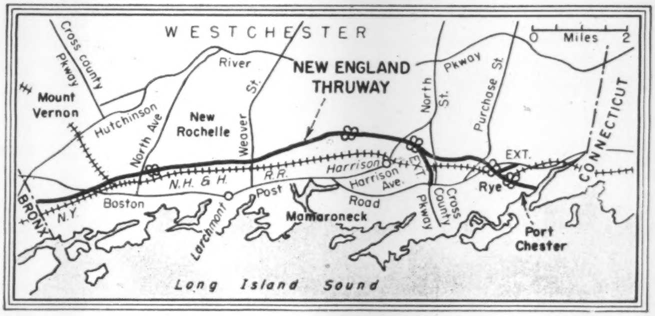
• What is a toll road? On the question as to what constitutes a toll within the meaning of the federal law, the committee states that "any tax or device for obtaining monies from road users, the payment of which is required as a condition precedent to the use of any particular highway, shall constitute a toll within the meaning of the Federal Highway Act.".

More air bases probed

Two groups of congressmen are starting inspections of overseas military construction.

Senators Wayne Morse and Russell Long planned to take off this week to make an on-the-spot check of the network of U. S. air bases being built on the edges of the iron curtain. They will make a 25,000-mi tour for the Senate Armed Services Committee with a small staff of experts, including George Vinzant, a civilian engineer, and Col. Mark Galusha of the Senate Armed Services Committee staff.

A House Armed Service subcommittee plans to leave on Aug. 15 for a one month inspection of military construction in the far east. Its itinerary calls for stops at Hawaii, Johnston Island, Manila, Kwajalein, Saipan, Guam, Okinawa, Tokyo, Korea and Anchorage Alaska.



Turnpike projects push rapidly ahead

Many well-to-do residents of Westchester County, N. Y., will not be happy about the route for the 15-mi Bronx-Port Chester segment of the New England Thruway, submitted recently to county officials by engineers of the New York State Thruway Authority (See map above).

For the stage from Larchmont, N. Y., to the Connecticut boundary the proposed route closely follows the trace of Westchester County's Pelham-Port Chester Parkway, planned 30 years ago but to date neither built nor abandoned. This route for the thruway will bring heavy commercial traffic through an area of large homes and country estates.

The right of eminent domain lies of course with the state, and the Thruway Authority has the last word in selection of the route. It is likely however that the state will try to avoid spoiling residential values, and that the route finally chosen will be the result of considerable dickering and compromise.

The Thruway Authority hopes to complete the Bronx-Larchmont portion of the highway in 1954, and the Larchmont-Port Chester portion in 1956.

Tentative plans call for an eventual lateral highway from Rye on the New England Thruway by way of North White Plains to the New York-Buffalo Thruway at Elmsford.

- **Ohio Turnpike funds ready**—Financing of the 241-mile toll superhighway across Northern Ohio is now completed, with the acceptance of $326 million serial-revenue bonds for Blyth & Co, Inc., representing a group of investment houses. Construction will begin before November 1, and first advertisements for contracts are scheduled to appear between September 15 and October 1.

- **Turnpike revenue climbs**—A breakdown of the revenue figures for the New Jersey Turnpike, reported to bondholders July 29, shows that of the total revenue of $7,603,250 since the partial opening of the road on November 5 last, $6,305,754, or 82.9%, came from tolls for Class I traffic (passenger cars and light trucks); $525,072, or 6.9%, was derived from concessions; and the remaining $772,424, 10.2%, came from other classes of traffic (busses and heavy trucks) and miscellaneous items. Corresponding figures for June, peak month of operation to date, are: Class I 82.0%, concessions 6.8% and remainder 11.2%.

- **Toll highways for Florida**—Immediate construction of about 450 miles of toll highways has been recommended to the Florida State Road Department by the consulting firm of Parsons, Brinckerhoff, Hall and Macdonald. One highway would run down the East Coast from Jacksonville to Miami, and a second is proposed from Daytona Beach across through the lake region to some point north of St. Petersburg. Traffic and engineering studies show that these roads, estimated to cost $275 million, could be financed by the toll method by 30-year bonds at 3½% interest.

- **No highway in Moffat Tunnel**—The report of the Moffat Tunnel committee, a ten-man group of the Professional Engineers of Colorado authorized by the Colorado Legislature to study the tunnel's adaptability to automobile traffic, gives no hope of the tunnel's being used for an all-weather road link joining communities on the continental divide.

The committee examined various methods of using the tunnel for motor traffic: provision of a wooden road between the tracks, enlarging the tunnel, and ferrying automobiles through on railroad flatcars. It is "reluctantly compelled" to report that none of the methods considered will pay all the fixed charges involved.

A committee has now been set up to study a toll-highway tunnel under the Loveland Pass.

Trend away from wood now seen reversing

Increased use of metal and other materials in home design during the period 1940-1950, is reported in a survey recently completed by the Forest Products Laboratory, Madison, Wis. But the trend away from wood is now reversing because of restriction in the use of metal.

The survey, conducted in cooperation with the Federal Housing and Home Finance Agency shows the following changes:

	% in 1940	% in 1950
Slab house	**(minor)**	**25**
Wood shingles	**33**	**10**
Wood floors	**99**	**81**
Interior finish:		
Plaster	**90**	**50**
Dry wall	**10**	**50**
Metal window frames	**10**	**30**
Wood kitchen cabinets	**92**	**76**
Weather stripping	**20**	**45**

The survey also notes that three of every four houses are now being built in the modified-ranch style. Buyers are generally demanding larger lots, storage-wall partitions between bedrooms, larger kitchens.

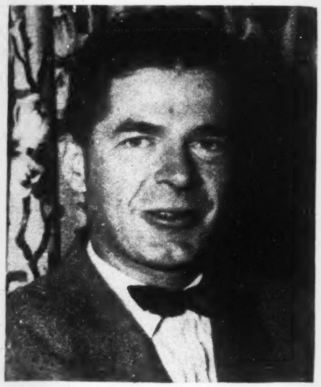
IBEW wins key election

The AFL International Brotherhood of Electrical Workers has won the first bargaining election (1,103 for; 10 against) ever conducted by the National Labor Relations Board in the construction industry. It was on the site of the atomic energy Savannah River project, Aiken, S. C., where hiring practices recently were criticized by a House labor investigation subcommittee (ENR July 31, p. 22).

The labor board has always felt it couldn't conduct bargaining elections in construction because of the large turnover of men and crafts during the time required to finish a job. Apparently, the board gave in to the persistence of IBEW claims that since the Savannah project would take so long a time in building, a satisfactory election procedure was possible there.

IBEW's certification—and immunity from raids—apparently is safe only for the duration of construction operations. Whether the election results will give the union a toehold when DuPont begins operating the plant, as IBEW hopes, remains to be seen.

REAL BOSS of the WSB and the CISC is Roger L. Putnam the head of the Economic Stabilization Administration.



NAMED HEAD of the WSB is Archibald Cox, Harvard professor and former co-chairman of the CISC. (Wide World)

New rules subordinate CISC

Some new faces and new rules entered the Construction Industry Stabilization picture as the Defense Production Act amendments took hold last week. In quick succession:

- The Construction Industry Stabilization Commission lost a co-chairman, Archibald Cox. Cox moved up to chairmanship of CISC's parent body, the Wage Stabilization Board.
- Home builders got a voice, at last, on CISC with the appointment of Joseph H. Vatterott of St. Louis as an alternate contractor representative.
- The National Association of Home Builders won its fight for a rule permitting builders and others to continue pre-Korea premium and bonus wage payments even where they exceed the approved area rates.
- As expected, it was desided that the decontrol of wages and salaries in small businesses employing less than nine workers will not apply to the building and construction industry. This was the policy pursued in World War II, also.

Cox, a Harvard law professor, has been CISC co-chairman since WSB set up CISC more than a year ago to control wages of on-site mechanics and laborers in construction. He is chairman of the new WSB, successor to the board formerly headed by Nathan P. Feinsinger.

Although his title was "Co-Chairman," Cox really served as chairman of CISC. Until a new man is named, CISC will be run by the other co-chairman, Thomas J. Kallis, an assistant solicitor in the U. S. Department of Labor.

CISC policies are subject to WSB approval. However, WSB under the Defense Production Act now may only make policy recommendations to Economic Stabilization Administrator Roger J. Putnam. So Putnam will have the last word on CISC policies.

Congress also took disputes-settling authority away from WSB, which means that CISC no longer can be utilized to arbitrate or make recommendations in construction disputes, as it has done on several occasions with the consent of both sides.

Vatterott, new alternate contractor member of CISC, is chairman of NAHB's employer-employee relations committee. He has been in the building business in the St. Louis area for 25 years. He is past president of the St. Louis Home Builders Association and a former director of NAHB.

- **Premiums**—The new rules permitting premium payments, piece rates and bonuses where that was done in the four months preceding July 31, 1950, are the result of protests against CISC's area-rate ceilings filed last December by the "Builders Association of Metropolitan Detroit." WSB discussed the problem further with NAHB in May, and held conferences with other interested groups.

WSB took two actions.

One was a resolution, No. 104, in which the old WSB recommended that the new WSB amend CISC Reg. No. 1 by inserting a section 5A permitting premium payments to certain workers. It would give prior approval permitting a contractor to continue paying "a fixed hourly premium above the preapproved area rate" to an employee having "special qualifications" or "special responsibilities" if the contractor paid such premiums in the four-month pre-Korea period and since then (except when stabilization rules prevented it.)

Premiums may not be paid to all employees. Records showing premium payments in the April 1-July 31, 1950, period must be kept available for inspection. Contractors may file applications for approval of premium payments where the qualifications for preapproved payments are not met.

The second action was a "decision" partially disposing of the protest of Detroit home builders. It covers piece rates or bonuses, as follows:

A contractor may continue to pay a piece rate or bonus measured by quantity of production of one or a group of employees in excess of the area rate where his records show he paid the same bonus in the April-July 1950 period and since (except when prevented by wage rules.) The piece or bonus "rate" may not be increased without CISC approval.

The "decision" also applies the same rules to non-production bonuses; vacations, holidays and welfare benefits.

In exempting small businesses of eight or less employees from wage-salary controls, Congress permitted President Truman to make exceptions in any industry, area or job occupation where it might be unstabilizing. Putnam issued nine exceptions. Besides building and construction, the list includes all businesses in Alaska, logging, tool and die shops, automotive repair shops, and trucking.

Jurisdictional strikes

Last week President Richard J. Gray of the AFL's Building and Construction Trades Department said that jurisdictional disputes have been practically eliminated by a new policy. (ENR July 24, p. 21)

The new policy, signed July 7 by 19 AFL union presidents for their 12,500 locals, served notice on the local unions that their charters would be revoked if they placed a picket on any job because of a jurisdictional dispute.

In an interview Gray said that the new policy is "working very successfully" and has reduced the number of work stoppages in the past month to one 24-hour strike.

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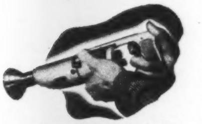
6. Hanging radiator housings to steel or concrete.

Simply hand-assemble stud and power cartridge, load as a unit in easy-to-open Remington Stud Driver, and close.



Press loaded Stud Driver firmly against surface, depress safety lever and pull trigger. Explosive charge imbeds stud solidly.

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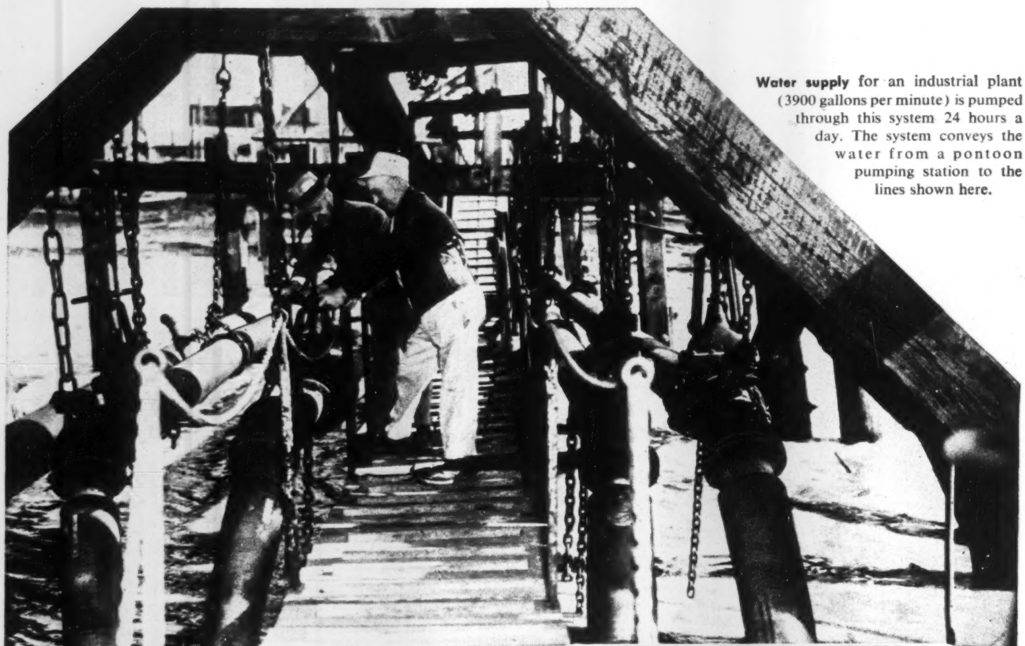
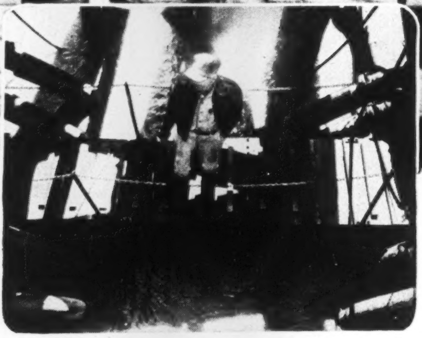
What's U. S. Rubber doing to handle the rise and fall of Mississippi water?



Water supply for an industrial plant (3900 gallons per minute) is pumped through this system 24 hours a day. The system conveys the water from a pontoon pumping station to the lines shown here.



The U. S. Water Discharge Hose connect the pontoon intake and the pumping station to the water lines.

No longer does the 16-foot rise and fall in the lower Mississippi sever the water-supply lines of an industrial plant. United States Rubber Company engineers installed special Water Discharge Hose which act as "hinges" as the water rises and falls.

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Canadian contractors shut down jobs retaliating for carpenters' strike

Now it's the employers who are on strike in British Columbia.

Greater Vancouver contractors, members of the General Contractors' Assn., shut down all major construction work in the area in retaliation for the strike of United Brotherhood of Carpenters and Joiners (AFL-TLC) at five Vancouver construction jobs.

The shutdown has idled about 1,800 carpenters and 5,000 other workers.

Carpenters this year are seeking a 50-c hourly increase on the $2 hourly rate; contractors want to maintain the rate at the present level, as recommended by a conciliation board.

Labor Relations Board, following the contractor's shutdown, proposed a 10-c hourly boost, board and room for out-of-town work, and double time for overtime.

Contractors turned it down, contended the new setup would mean an actual 45-c hike over present rates.

Carpenters approved the LRB proposal, but won't enter negotiations till contractors also okay it.

Meanwhile, 500 painters are out on strike for a 30-c hourly pay boost, and 30,000 lumber and wood workers, members of IWA, are also out on strike in a dispute in which operators rejected an IWA demand for a 35-c hourly wage hike, employer-paid health and welfare plan, union shop, statutory holidays, travel time for loggers and other concessions.

Operators originally proposed to slash wages in some manufacturing units, finally agreed to a conciliation board recommendation for no change in contract terms. IWA walked out without the customary government-supervised strike vote, has rejected a Labor Relations Board proposal to return to work pending further negotiations.

The strike is costing workers about $500,000 a day in wages, and British Columbia's economy nearly $1 million daily.

• **Public works halted too**—About $20 million in British Columbia government public works contracts, planned for completion this summer, are being held up by labor difficulties and a confused provincial election.

The election confusion results from use for the first time of the alternative voting system. The present government obviously was defeated on the first count, and as counting of second, third and other choices continues, Canadian Commonwealth Federation (Socialist) and Social Credit (patterned on Alberta party) parties are running neck and neck for the unenviable position of forming a minority government.

Pending clarification of the vote, Premier Johnson (Liberal) has ordered all government contracts held up.

Meanwhile, work is halted on $5 million worth of school contracts as a result of carpenters strike and contractors retaliatory shutdown.

At least $5 million of government contributions to by-law plans and general school construction projects are held up and various highway and public building plans, exceeding $10 million, have been set aside because of the halt in award of contracts.

Another problem is that of holding engineering staffs during the holdup. The government earlier this year planned one of the most active road building programs in the province's history and with great difficulty gathered together enough engineers.

Military deferment

The granting of temporary military deferments to apprentices in skilled trades was seen as, "materially strengthening the nation's manpower resources, by assuring an orderly flow of workers into the skilled trades," by W. F. Patterson of the Department of Labor.

He added, "our national labor supply is adequate, but essential skills are in short supply. The granting of temporary deferments to apprentices in trades essential to our defense and civilian needs will aid materially in broadening the skills of our entire national work force and in enabling management and labor to set up training organizations that can be expanded quickly in the event of an emergency.

"In signing the order granting deferment to apprentices needed for military and essential production, President Truman stressed that it does not permit permanent exemption of any worker for Selective Service.

"Rather, it provides a more orderly basis for granting the temporary deferments which local boards have customarily extended to qualified individuals."

In general, the order provides for the deferment of apprentices in training programs considered necessary to the maintenance of national health, safety, or interest. One of the conditions is that "the apprentice training program meet the standards and requirements prescribed by the Director of Selective Service, based upon the recommendations of the Secretary of Labor.

Ultimatum ends strike of Philadelphia carpenters

Over 2,000 carpenters, employed on homebuilding projects in the Philadelphia area have returned to work after a week-long strike over wages.

They agreed to arbitrate with the Home Builders Association of Philadelphia and suburbs which had ordered its 150 members to bar all carpenters from work on their projects.

William E. Johnson, executive vice-president of the association, said the action was taken after the Carpenters Metropolitan District Council, AFL, refused to settle strikes involving carpenters and to arbitrate a wage dispute that led to the walkouts.

Johnson said the union failed to sign a new, recently negotiated contract.

The action by the Home Builders was unique in that it refused to tolerate scattered strikes by some carpenters when the wage dispute developed. It set an ultimatum for all the carpenters to return. When they did not, its members were ordered to remove all carpenters from their projects. Most of them did.

A week later the union ordered its men back and agreed to arbitrate the dispute. The Home Builders have offered $2.85 an hour. The union is asking $2.90 an hour.

Work is now proceeding on schedule at the 150 projects.

Strike briefs . . .

• **Denver, Colo.**—A week-long carpenters' strike in Denver came to an end three weeks ago when nearly 4,000 members voted almost unanimously to accept a proposal reached in negotiation with Denver General Contractors' Association. The new scale is $2.625 per hour compared to the old $2.35.

• **Saskatchewan**—Regina's strike of 253 union carpenters ended last month with the men accepting an increase of 17 cents an hour, bringing their pay to $1.75 an hour. The Moose Jaw strike continued although there was some hope that a settlement in the smaller Saskatchewan city would be reached.

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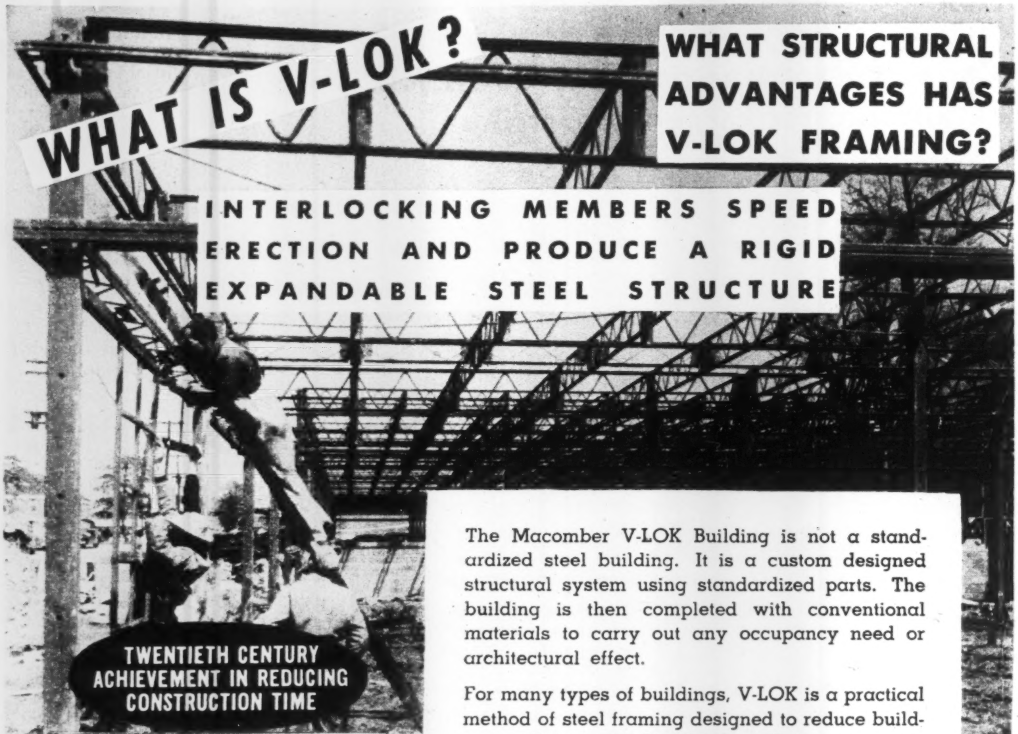
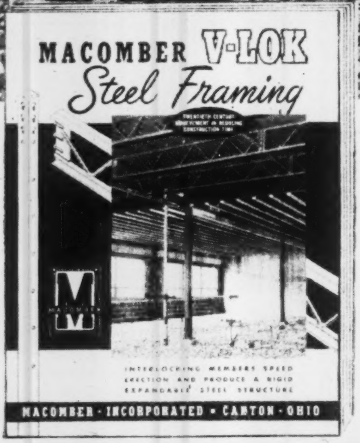


TWENTIETH CENTURY ACHIEVEMENT IN REDUCING CONSTRUCTION TIME



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COMPOSITE AERIAL VIEW of Hillsdale-San Mateo as it is scheduled to appear when the new major regional shopping center is completed. The David B. Bohannon Organization's 700 garden apartments are at left and the Southern Pacific station at lower right. In the center is Macy's Hillsdale store.

$30-million shopping center planned

Macy's San Francisco recently announced plans to start construction of a $6-million store in the new Hillsdale Shopping Center on the San Francisco Peninsula of San Mateo.

The unit, occupying five acres of floor space, is Macy's first suburban store in California and will be the largest of the 15 in the nation which operate as branches of the corporation's six metropolitan stores.

At the same time, the David B. Bohannon Organization, developers of Hillsdale, said they would expand their project into a $30-million major regional shopping center occupying 42 acres and including 75 shops. Development of the shopping center was contingent upon the decision of a major department store to locate there. Several other Peninsula communities had also put in their bid for Macy's new store.

Announcement of Macy's expansion to the Peninsula was made jointly by Wheelock H. Bingham, president-elect of Macy's New York, and Ernest L. Molloy, who will succeed Bingham as president of the San Francisco store. They said approval for construction and materials has been granted by the National Production Authority.

Macy's and the Bohannon Organization will cooperate in the exterior design and construction of the basic store building, while the interior design will be handled by John Booles, Macy's San Francisco architect. Architects for the overall design of the shopping center are Welton Becket and Associates.

• **Why Hillsdale?**—Macy's executives point out that the new store does not mean a decentralization from San Francisco, but spearheads their expansion program. Hillsdale was chosen for the first store because of its strategic location at the center of the geographic and population area to be served. The peninsula in 1954 will have 313,000 people living within 25 minutes of Hillsdale, making annual retail purchases estimated at some $359 million. Two main highways as well as a railroad and bus line converge there.

The Macy store is planned to be the focal point of the shopping center. It will have a reinforced concrete frame and will consist of two levels above the ground and one below. The largest single floor, 90,000 sq ft, will be on the lowest level. The street and top level floors will each have 55,000 sq ft of space.

All three floors will be air conditioned and served by escalators. Interior fixtures will be designed to display merchandise so the customer may "pre-select," with the assistance of sales clerks available. Columns will be spaced on 25 ft centers for best flexibility of store operation.

• **Plan**—Buildings in the shopping center will be grouped around a landscaped, central traffic-free mall. Traffic to the 3,000 parking spaces will be directed from elevated observation booths, and trucks will service the buildings via an underground concourse which can also serve as a community bomb shelter for the area.

Stores will be placed in a double row in the middle of the site, cutting walking for shoppers by one-half.

Besides Macy's, other major structures in the center will include a 5-story medical-dental building, a large junior department store, a drive-in restaurant and drive-in bank, a restaurant, a series of one- and two-story shops lining the central mall. A supermarket and a Sears-Roebuck store are already in operation on the site.

Completion of Macy's plans culminated the Bohannon Organization's program, started in 1939, for development of a completely planned community. Already constructed are 700 patio-type garden apartments and more than 500 homes.

Reservoir cover doubles as 275-car parking space

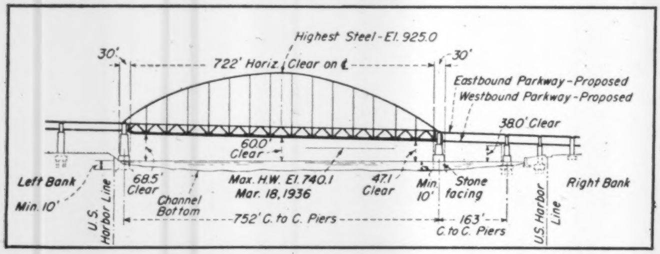
The City of San Diego, Calif., has moved to provide parking area for 275 cars in a crowded business section at an out-of-pocket cost of $980.

An increase by that amount in the $400,000 contract of the M. H. Golden Construction Co. for building the University Heights North Reservoir was approved by the City Council.

The 11.5-mg reservoir already had been designed with a concrete slab cover. Merchants in the adjoining North Park business section, plagued with parking problems, eyed the prospective 93,000-sq ft paved area and petitioned the city to provide sufficient strength in the original construction so that it could be used for parking. The council approved the request when the contractor provided a firm cost factor of $980 for the additional reinforcing which the strengthened design required.

Paul Beerman, city hydraulic engineer and acting water department director, said the design for the reservoir cover already provided for substantial live load but was strengthened with added negative reinforcing and a minimum of redesigning to provide for an additional 40 psf. The cover is of reinforced concrete beam and continuous slab construction. The slab is 3½ in. thick. The reservoir replaces a 3-mg reservoir. The new reservoir measures 316x346 ft, with a 108x147 ft corner out, giving it an L shape. The maximum water depth will be 18.5 ft. The construction work is one-third completed and completion is expected in Mid-November.

Design work on ramps and other approaches has not yet been done.


Highest Steel-El. 925.0
30'
722' Horiz. Clear on ℄
30'
Eastbound Parkway-Proposed
Westbound Parkway-Proposed
38.0' Clear
60.0' Clear
Left Bank
Min. 10'
U.S. Harbor Line
68.5' Clear
Channel Bottom
Max. H.W. El. 740.1 Mar. 18, 1936
47.1' Clear
Min. 10'
Stone facing
Right Bank
752' C. to C. Piers
163' C. to C. Piers
U.S. Harbor Line

FORT PITT BRIDGE a proposed two deck structure at the foot of Liberty Avenue.

Pittsburgh plans new bridge near Point

The U. S. Army, Corps of Engineers, gave their approval last week to plans of the Pennsylvania Department of Highways to build a multi-million-dollar new bridge across the Monongahela River in downtown Pittsburgh near the Point.

The new span, to be known as the Fort Pitt Bridge, will be a part of the Penn-Lincoln Parkway when both projects are completed.

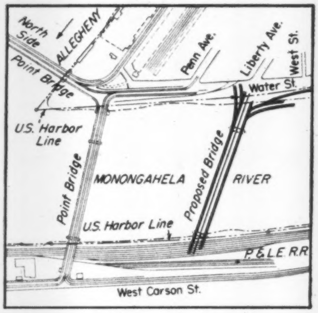
At a public hearing held by the Army District Engineer, George Richardson, designer and consulting engineer for the state highways department, explained the bridge will have a clearance varying between 47 and 68 ft at pool stage. He said the distance between the innermost piers will be 722 ft, leaving 640 ft clearance at right angles to the stream.

Those statistics were among the most important at the hearing since the engineers are primarily interested in how the proposed span will affect river transportation.

No witnesses showed up at the hearing to offer any objections to the bridge or its proposed site at the foot of Liberty Avenue. One witness, however, was critical of the span's design.

He was David Matthews, Jr., secretary of the Pittsburgh Coal Exchange, who said the minimum clearance was too low. He also questioned the pier angle to the flow of the river and added: "If it were not for the importance of the bridge to the Penn-Lincoln Parkway and the city's development, we would register strong objections. We wouldn't want to see the bridge set a precedent that would be bad in the future."

His suggestions did bring one change. The bridge plans were changed to call for placing mooring rings on the downstream side of the channel piers.


North Side
ALLEGHENY
Point Bridge
Penn Ave.
Liberty Ave.
West St.
Water St.
U.S. Harbor Line
Point Bridge
MONONGAHELA
Proposed Bridge
RIVER
U.S. Harbor Line
P.&L.E. R.R.
West Carson St.

LOCATION MAP showing the relation of the new bridge to the soon to be demolished Point Bridge.

The bridge plans now will be forwarded to the Secretary of the Army for his okay. That approval is expected to be routine.

The proposed bridge will replace the present Point Bridge. It will be double decked but will not carry any street car tracks, according to present plans. When the present Point Bridge is demolished, the Pittsburgh Railways Co. may have to shift to bus operation to serve its patrons in the west end of Pittsburgh.

Montgomery slum clearance building 390 units

Montgomery, Ala., largest face-lifting" got underway this month. Cost of the work, according to Charles P. Rogers, manager of the Montgomery Housing Authority, will be $2,779,-620.

The contract, awarded to Shelby Construction Company, New Orleans, La., calls for removal of 293 slum units on approximately 25 acres and construction of 390 units of the one- to five-bedroom class. There will be 40 one-bedroom units, 159 two-bedroom units, 129 three-bedroom units, 44 of four bedrooms and 18 with five bedrooms.

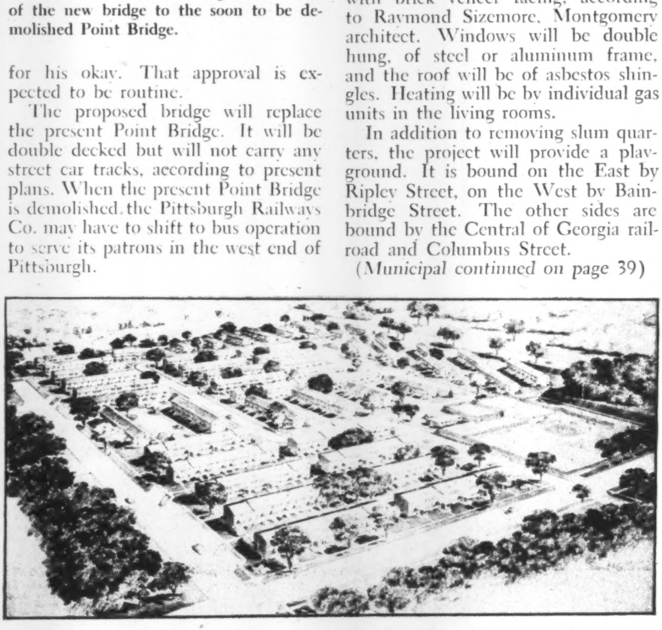
Families with less than three children, and with incomes under $2,000, and families with more than three children, and income not exceeding $2,400, will be eligible.

He said rent, in accordance with housing laws, will be assessed at 20% of income for families with less than three children and at a rate of one-sixth of income for families with more than three children.

Unlike most of the houses now occupying the site, which lack sanitary facilities, the new units will be modern and well ventilated. The buildings will be of hollow clay tile with brick veneer facing, according to Raymond Sizemore, Montgomery architect. Windows will be double hung, of steel or aluminum frame, and the roof will be of asbestos shingles. Heating will be by individual gas units in the living rooms.

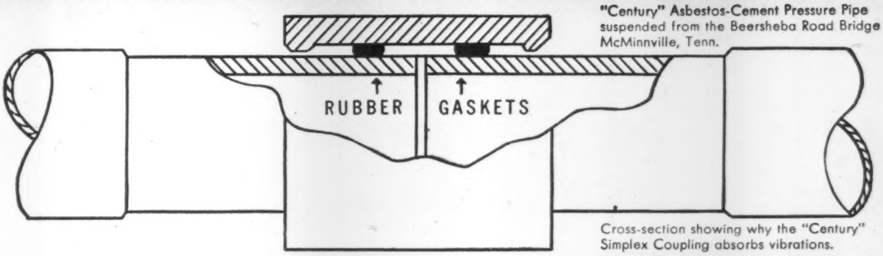
In addition to removing slum quarters, the project will provide a playground. It is bound on the East by Ripley Street, on the West by Bainbridge Street. The other sides are bound by the Central of Georgia railroad and Columbus Street.

(*Municipal continued on page 39*)



HOUSING PROJECT for Montgomery, Ala., will replace 25 acres of slums.

"Century" Asbestos-Cement Pressure Pipe suspended from the Beersheba Road Bridge at McMinnville, Tenn.



Cross-section showing why the "Century" Simplex Coupling absorbs vibrations.

Cross your bridges with . . .

"CENTURY" asbestos-cement pressure pipe

Built for crossing bridges when it comes to them, "Century" Asbestos-Cement Pressure Pipe withstands vibration due to its inherently rugged construction and the rubber cushioning of its "Century" Simplex Couplings.

As you can see from the cross-section of the "Century" Simplex Coupling above, the pipe ends float in rubber gaskets which absorb these vibrations and the separation of pipe ends within the coupling localizes them to the individual pipe sections. Each coupling serves as an expansion joint.

Its light weight and handy lengths are easy to attach to bridge structures. Economies result because specially skilled labor is not required. It can be cut on the job, and "Century" Simplex Couplings safely allow up to 5° of deflection for each pipe length. Over the years its strength actually increases, and its smooth inner surface assures continuous maximum carrying capacity. The usual painting expense is completely eliminated.

Here is high performance at low cost in water mains. Write for full data.

Write for Free Booklet, "Mains without Maintenance." Contains valuable reference material, specifications, and data for anyone interested in pipe for water mains.

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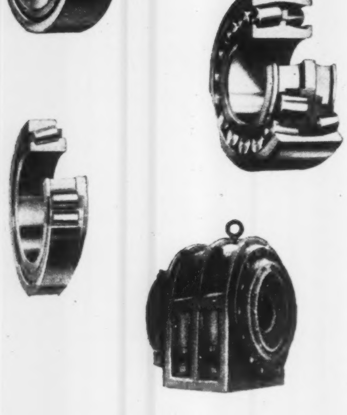

good follow through...

Selecting the right type of bearing for your application is only the beginning of the job.

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GULF FREEWAY (looking towards the city of Houston) one of the longest toll free superhighways built since World War II.

50-mile Gulf Freeway opened to traffic

On August 2, 1952, the 50-mile Gulf Freeway was opened to traffic between Houston and Galveston.

Representatives of the two cities formed a motorcade at each end of the $28,643,000 concrete superhighway, and met at mid-point for an official dedication ceremony.

Governor Allan Shivers and E. H. Thornton, chairman of the Texas Highway Commission led the processions.

The first contract on the Gulf Freeway was let in 1946 for the first three-mile section within the Houston city limits. This three mile urban section, plus another six miles which have been completed since, has already carried 252 million vehicle miles of traffic. Only four fatalities have been suffered, making the 1.8 fatalities per hundred million miles compare very favorably with the national average of 7.5 for all types of roads, including superhighways.

Some 75,000 daily users of the Houston end of the Gulf Freeway have already saved 485 million vehicle minutes, which converted to dollars amounts to $12 million. The nine-mile urban section was built at a cost of $15,600,000 including right of way.

Construction costs on the Freeway were split evenly by the state and federal governments, with right of ways being paid for by the City of Houston, Harris County and Galveston County.

The Gulf Freeway is one of the longest toll free superhighways built since World War II.

Future plans for urban expressways in Houston include six miles of double decked expressway routes estimated to cost $30 million. These routes would be joined with the Gulf Freeway to relieve traffic in the downtown area.

New York crime commission asks for study of port

Part of a Port of New York survey which will be made by Sanderson & Porter, engineers of New York, will be to determine whether the Port's physical condition has anything to do with crime.

The engineers have been engaged by the New York State Crime Commission to study pier facilities, the extent of traffic hindrance at pierheads and make a study of the relation of congestion to rackets and loading irregularities.

In addition to the study, Sanderson & Porter will make other determinations bearing on the interlocking factors of trade, trade loss, the rundown condition of certain longshore areas, progress in the city's port rehabilitation program and the bearing of these factors on the crime picture for New York.

Another controversial problem which the engineers will study will be the question of trade loss in the port. Some people have charged that considerable trade is moving away from the port because of the obstacles to trade imposed by declining facilities, mounting costs, labor difficulties and crime and racketeering.

Shipping executives for the most part do not believe that the port is losing much business.

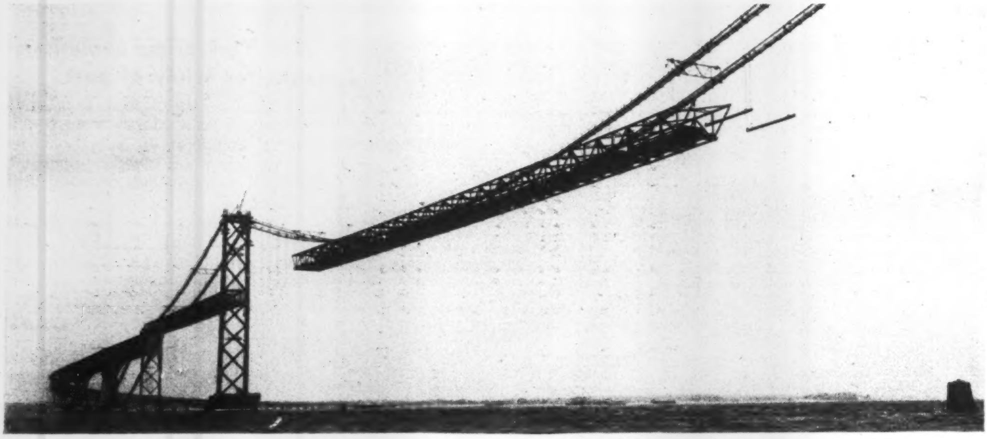
The engineering concern is expected to separate the competitive from the non-competitive types of cargo and to determine whether New York is losing the kind of cargo it should be keeping.

- **Experience**—Sanderson & Porter made an investigation of port conditions some years ago for the World Trade Corporation. At that time New York City was trying to decide between its own Department of Marine and Aviation and Independent Agency as the custodian of the port's rebuilding program.

The choice was in favor of the Department which has spent $27 million in the last 27 months. Decades of neglect had to be overcome in the rehabilitation work.

Due to this experience the concern has files bulging with data on pier needs, statistics on part trade and comparative information on other ports throughout the world. According to reports it has undertaken the survey for a nominal fee in the public interest.

In addition, the records of the department have been made available to them.



CHESAPEAKE BAY BRIDGE construction was subject to open-water hazards throughout its four-mile length.

Pre-assembly pays on suspension span

- **Strands, instead of parallel wires, cut cable-erection time two-thirds**
- **Pre-assembled sections of suspended structure hoisted to place quickly**

When the four-mile Chesapeake Bay Bridge opened on schedule last week, several contractors glowed with satisfaction at a difficult job well done.

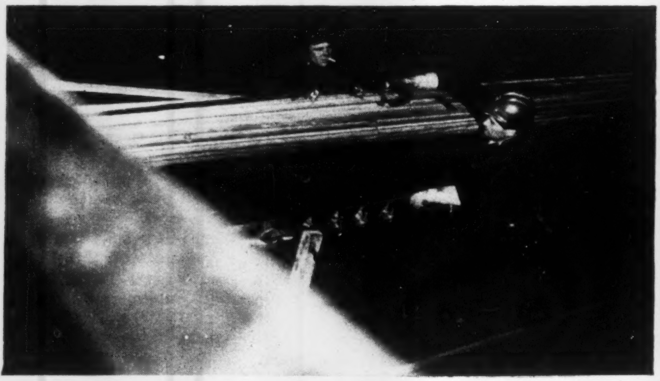
This success stemmed from a series of design and construction innovations, many of which already have been described in ENGINEERING NEWS-RECORD (see list on last page).

Two more features—these in suspension bridge erection—round out the story. They are the use of bridge strands instead of parallel wires in the cables, and the placement of suspended structure in large 4-panel pre-assembled sections.

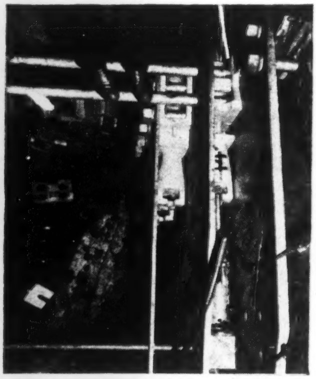
Both features are consistent with a philosophy that has ruled all of the bridge's erection: Do as much work as possible off-site, away from the hazards of open-water construction; then bring it to the job and place it as quickly as possible.

• Longest strands—Strands were used in big suspension bridges as long ago as 1930, but the Chesapeake Bay Bridge's 2,920-ft suspension section is the longest strand-cable structure so far. And because each suspension anchorage is one pier away from the end of the suspension span proper, strands are almost 4,000 ft long. (Main span length is 1,600 ft.)

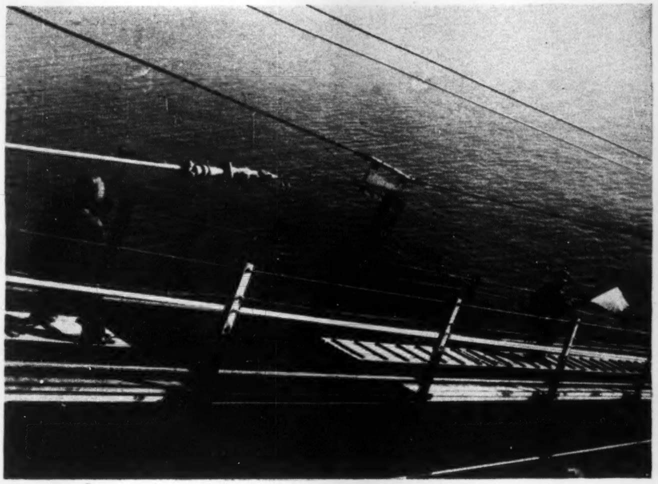
The strands, 55 large ones and 6 small ones for each cable, were manufactured in Trenton, N. J., where they were pre-stressed, measured, marked for saddle positions and provided with



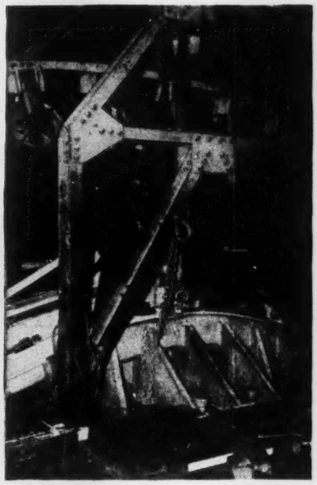
STRAND ADJUSTMENT takes place at night, when temperature changes aren't a bother. Chain hitch on strand is connected to a hand hoist, which pulls strand to exact position with respect to previously-set strands.



STRAND ANCHORAGE is in steel plates at bridge's anchor pier. Jack at right puts proper tension on strand socket.



SUSPENSION BRIDGE STRAND—one of 61—is pulled to place by tramway of same type used for parallel-wire cable spinning. Difference is the steel plate on the hauling rope, which replaces conventional spinning wheel. Man at left keeps strand from untwisting. It takes 25 minutes to haul a strand from one anchorage to the other. As many as nine strands were placed in a day.



FALSEWORK on tower supports a chain hoist that transfers strands to position for adjustment in saddle. Strand-hauling rope rides in split-sheaves that allow pulling plate to pass through.

special anchorage sockets. The saddle-position markings gave each strand its correct sag for its designed final position in the cable.

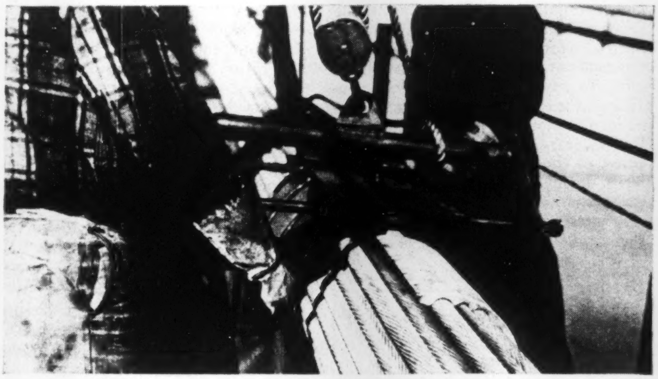
• **Strand carrier**—Each strand was delivered on a reel and then pulled off and into place in the bridge cable by a conventional cable-spinning tramway.

Here, the cable-spinning tramway was equipped, however, with a "strand-carrier" (a piece of downward-projecting steel plate) in place of the usual spinning wheel. On the Chesapeake Bay Bridge the strand carrier pulled one strand (69 wires) during each 25-minute trip.

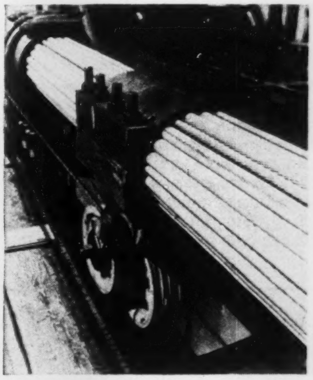
Engineers of Bethlehem Steel Co., the erection contractor, estimate that a parallel-wire job would have taken three times as long with the same amount of equipment (one tram engine and reel-handling equipment on one anchorage pier only). The time saving was not greater because there was a limit to the number of strands that could be placed daily.

A day's work included the temporary placement of one horizontal layer of strands (five to nine strands). This step involved approximate positioning of the strang layer in the final cable location. The layer was secured by wood clamps that kept it flat.

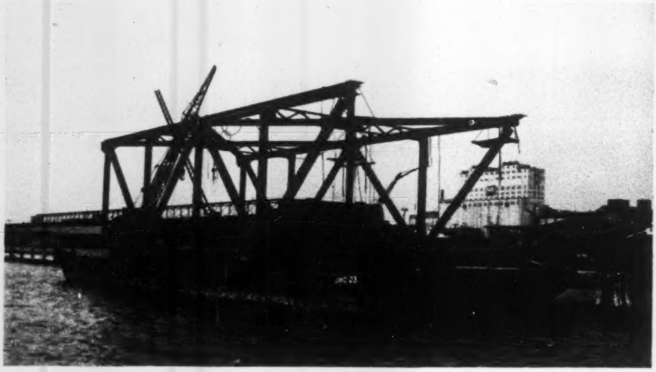
• **Strand adjustment**—Then at night, when temperature variations were less severe than in the daytime, a second crew moved onto the towers and catwalks. With the aid of chain hoists at the saddles, the crew carefully adjusted the position of each strand. Friction against saddles and other strands was enough to hold a strand. It was moved lengthwise by a chain hitch and a hand hoist, the objective being to set each strand to the cor-



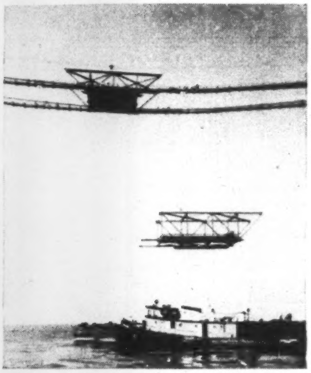
CABLE BAND has a four-section zinc liner that conforms to shape of assembled cable. Two loops of suspender rope will hang down from band. To complete cable, cast aluminum fillers were set in strand corrugations, then the assembly was wire-wrapped.



HOISTING TACKLE for raising suspended structure units includes this cable clamp, which supports sheaves.



SUSPENDED STRUCTURE was assembled in 4-panel sections on barges at Baltimore, then towed 30 miles to the jobsite. Section weighed about 130 tons. Floor steel was assembled in three panels; the rest rode on deck for on-site erection.



GOING UP—Section of suspended structure, was picked off barge and hoisted to place for pinning to adjacent section.

rect sag relative to the previously erected strands. The first strand erected in each cable was used as a guide, and set with its saddle marks precisely in line with the apexes of the saddles.

Adjustment took place first at the main-tower saddles, then at the side-pier saddles. At the anchorages, jacks pulling on the sockets made the final adjustment for correct length; proper shims were placed, then the load was transferred through bearing rods to the anchorage plates.

Strand sizes are $1\frac{11}{16}$ in. dia (69 wires) and $\frac{29}{32}$ in. dia (29 wires). Strands in successive, layers are opposite-lay, to promote nesting of the individual wires. They make up a cable with overall diameter of $13\frac{29}{32}$ in. This includes cast aluminum fillers that fit the corrugations between outside strands, and it includes a layer of No. 9 wrapping wire.

Suspender ropes hang from cable bands spaced about 40 ft apart, that is two panels on the suspended structure.

• Suspended structure—The two-panel suspender spacing lent itself to another significant bit of pre-assembly. Four-panel sections of the suspended structure were erected, complete except for the floor system of one panel, on barges at a pier in Baltimore. Then they were floated 30 miles down Chesapeake Bay to the bridge site and hoisted to position for pinning to adjacent sections.

Eight-part wire-rope falls hanging from special clamps on the cables picked up a section at four points. Pick-up was accomplished with the aid of two longitudinal lifting beams (shown in first photo) that bore up under suspender connection brackets projecting from the section's lower chords. Level lifting action was obtained with the aid of mercury-filled horizontal leveling with their ends turned up toward mercury switches. If the mercury rose in one upturned end of the tube (in response to an out-of-level condition) it actuated the switch, which turned on a light. The signalman could govern operations accordingly.

Engines were on piers, their lines going to sheaves on the tower saddles, then down the cables to the special cable clamps and sheaves.

Suspended structure sections were joined initially at their top chords, the lower connections being left unpinned until all sections were in. In this way the sections were free to adjust themselves to cable rise and fall as load conditions varied during progress of suspended-section erection. According to Bethlehem engineers the vertical position of the cables at midspan varied 32 ft during erection.

• Progress—Work on the Chesapeake Bay Bridge began in late 1949. First traffic crossed it July 30, 1952. Cable erection began Feb. 7, 1952 and the suspended structure was ready for concreting June 2, 1952.

• Management—Planning for erection of the Chesapeake Bay Bridge was under the direction of J. H. Wagner, general manager of erection for Bethlehem, and E. L. Durkee, Bethlehem engineer of erection.

The new Chesapeake Bay Bridge was designed by the firm of J. E. Greiner Co., Baltimore, for the Maryland State Roads Commission, Baltimore, Maryland.

Chesapeake Bay Bridge Articles

Six contractors build bay bridge foundations..............Oct. 26, 1950, p. 32
Gyro compass sets batter piles.........................Oct. 26, 1950, p. 34
Folding scaffold traveler strips pavement forms..........Sept. 6, 1951, p. 48
Four miles of bridge erected without falsework...........Sept. 27, 1951, p. 42
Chicago booms speed suspension tower erection..........Oct. 18, 1951, p. 44

State may finance Central Arizona Project

Arizona, after years of trying to get the federal government to finance the Central Arizona Project, now is exploring the possibility and methods available to the state of Arizona for financing it as a state project.

Last week the Bureau of Reclamation announced it has approved an application by the Arizona Interstate Stream Commission for a right-of-way across public lands for construction of the granite reef aqueduct. This aqueduct is part of the Central Arizona Project, and would run from the Colorado River to the vicinity of Phoenix.

Secretary of Interior Oscar L. Chapman, also promised Arizona help if the state decides to build another part of the project—Bridge Canyon Dam and Reservoir. He said a definite offer from the state would receive prompt consideration. Bridge Canyon Dam would provide the power needed to pump water through the aqueduct to central Arizona, where it is needed for irrigation.

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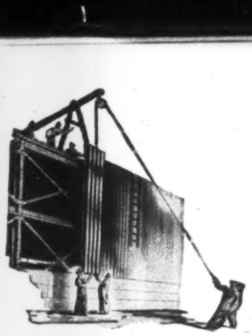

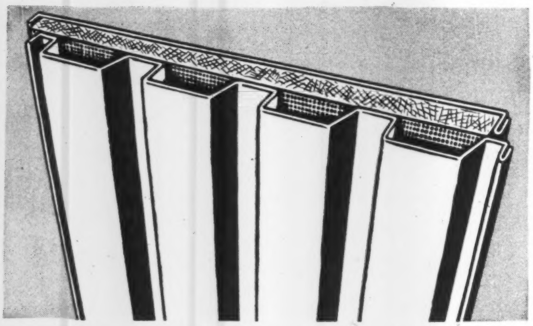

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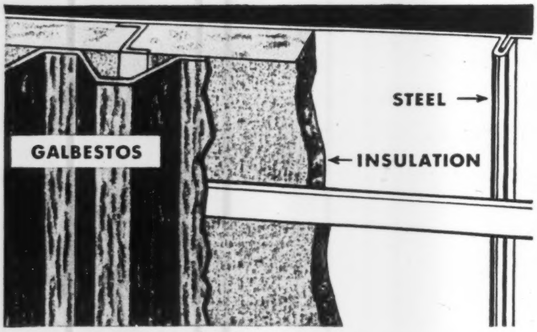
(STANDARD)

Factory-assembled Q-Panels go up quick—50 sq. ft. in nine minutes. Only a small crew is needed to attach panel to frame. Perfect for powerhouses, administration, research and laboratory buildings. The distinctive fluted surface provides an interesting wall texture.

WEIGHT	SIZE	INSULATION	FINISHES*
In Steel—6 lbs./sq. ft.	2′ wide; lengths up to 25′ depending on material used.	Complete panel is 3¼″ thick with insulation value superior to a 12″ masonry wall with furred plaster. U-factor—.14 in aluminum; .18 in steel.	Steel, aluminum, stainless, Galbestos metal**. *Depending on availability.



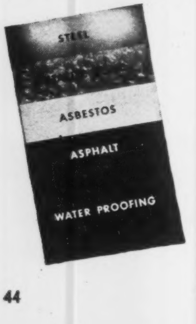
ROBERTSON Q-PANELS

(G-TYPE)

Factory-engineered for quick field assembly, G-Type Q-Panels provide commercial and industrial buildings with good-looking, maintenance-free walls. G-Type Q-Panels are insulated, lightweight and capable of long spans to reduce the over-all weight of your building. They have the advantage of Top-Speed Fastening, a Robertson method by which greater areas of walls can be installed per crew. All work is done from the outside, eliminating interior scaffolding.

WEIGHT	SIZE	INSULATION	EXTERIOR
7 lbs./sq. ft.	12′ long, width determined by size of Galbestos sheet.	U-factor—.16	Galbestos metal**

**THIS IS GALBESTOS METAL



Steel sheet with asbestos felt metallically bonded to it. The felt is then impregnated with asphalt and waterproofed. The bond is inseparable, to all purposes forming a new kind of material. Maroon, black or aluminum color; fabricated in a variety of shapes.

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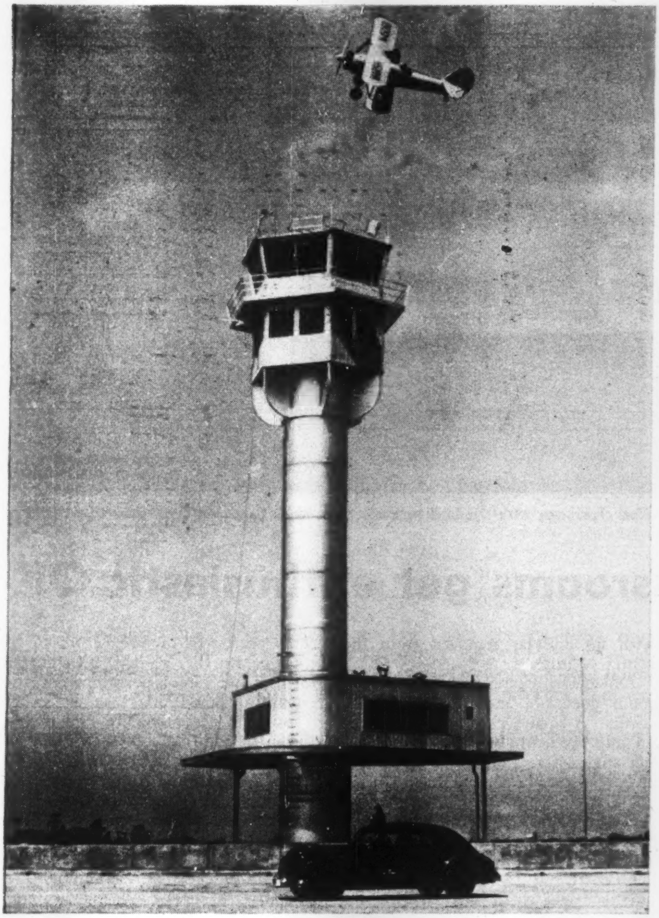


SUPPORTING CYLINDER, 9 ft in diameter, contains spiral stairway and 2-ft dia inner shell for utilities. Control cabs at top and office below are air conditioned.

Airport control tower sits on steel tube

RESEMBLING a tall tulip, the control tower at Phoenix, Arizona's new $1-million Sky Harbor Airport perches on a 9-ft-dia steel tube 80 ft high. Its beacon light is more than 100 ft above the ground. This more than normal height was necessitated by the location of surrounding buildings.

The structure, costing $92,000, is situated on the field entrance side of the terminal building now under construction. It rests on a hexagonal-shaped foundation that is 4 ft 2 in. thick. The supporting cylinder is composed of $\frac{5}{16}$ and $\frac{3}{8}$-in. steel plates, as is an inner utility shell 2 ft in diameter. An iron spiral stairway, with landings every 8 ft, runs between the inner and outer shells.

Airplane traffic is controlled from the upper of two hexagonal cabs at the tower top. The lower cab rests on structural steel fins welded to the steel tube and contains service facilities for the tower operators and air conditioning outlets. Access to the upper cab is by a ship-type ladder staircase on an outer wall.

An office for the chief controller is located 16 ft above grade and is supported by thin struts as well as by the 9-ft steel tube. It is also air conditioned.

• **Space problems**—Location of utilities posed the most difficult design problems; there just isn't much space to spare in the steel cylinder, nor in the small control cabs.

All cooling, heating, pumping and electrical equipment is located in the basement, 10 ft below grade. Piping and ductwork run through the inner shell.

Automatic control of heating and cooling is provided since in the winter months it is necessary to cool during the day and heat at night.

Careful insulation of all parts of the tower keeps conditioning equipment capacity (and space requirements) to a minimum. Two 1-in. layers of vegetable cork are attached to the interior surface of the outer steel shell. The lower office and cabs are insulated with mineral wool. All pipes have thermal protection. Double glazed windows in the upper cab help prevent excessive solar heat gain.

The unique control tower was designed and built by Phoenix firms. Stevens & Hamblyn were the engineers, Lescher & Mahoney the architects. Contractor was Mardian Construction Co. and the steel shell was fabricated by Consolidated Western Steel.

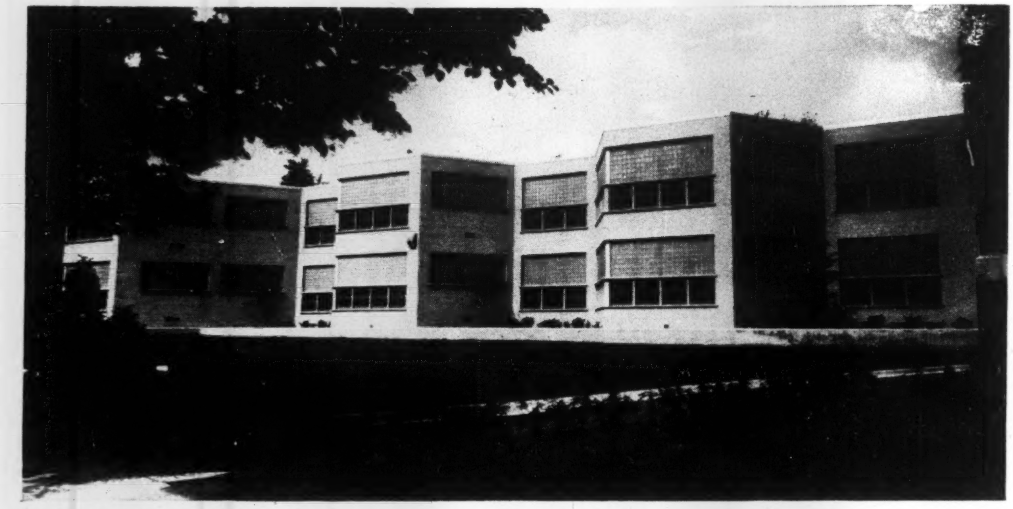
Why windows discolor

Discoloration of window glass can be due to conditions to which it has been exposed before being fixed in the frames, reports the British Building Research Station. When crates of glass are exposed to rain, during either transport or storage, a thin film of moisture may become entrapped between adjacent sheets.

This film of water cannot dry easily. The moisture leaches some of the soda from the glass and the alkaline solution continues to attack the glass, causing the discoloration.

Once a pane of glass has become affected in this way, it is quite uneconomic to treat it to remove the discoloration. Transportation and storage of glass is thus an important matter. When glass is being moved from place to place, it should be covered adequately by tarpaulins to prevent any rain coming in contact with the glass in the crates.

The crates should be stored in dry buildings. Since the action can take place within a period of weeks, any glass received in a damp condition should be removed from its crate, and the sheets should be separated and allowed to dry.



SCHOOL in East Orange, N. J., contains six-sided classrooms with 5-ft high prismatic glass block panels on three sides of each room.

Hexagonal classrooms get enthusiastic OK

AFTER 18 MONTHS of carefully observed use in an East Orange, N. J., elementary school, hexagonal-shaped classrooms with glass-block daylighting on three sides have received unqualified endorsement from all quarters.

That city's superintendent of schools, Dr. Henry E. Kentopp, commented recently that teachers without exception went into superlatives over the six-sided classrooms and how they provide for convenient grouping of students, increased efficiency for discussion, maximum flexibility, and improved utilization of space.

The daylighting arrangement also received its share of plaudits. Artificial lights had to be turned on during only the very darkest days of the school year, not more than ten times in all on an average. In addition, not one teacher has requested shades for the 5-ft high panels of glass block—the hollow prismatic blocks keep brightness low, yet deliver at least three times as much light on the corridor side of the room as the usual clear glass installation would.

• Why hexagons?—Planners for the East Orange edifice, an addition to the existing Stockton School, did not deliberately set out to break the so-called "cardinal" principle of rectangular classrooms just for the sake of doing so. They wanted space that would permit every pupil to see and hear well during discussion periods, and a natural semi-circular grouping with no one far removed from the center of interest.

Obviously, a long rectangular classroom does not meet these requirements. A square classroom would be an improvement, but the 90-deg corner angles were thought to be restrictive. So the hexagonal-shaped classroom was proposed.

There seemed to be no reason why this shape would not accomplish the aforementioned objectives (except perhaps cost), but the idea was tested and further refined in an experimental classroom, set up in an elementary school gymnasium. Regular classes were conducted for several weeks in this temporary six-sided room.

As finally designed and built in February, 1951, the two story Stockton School addition contains eight six-sided classrooms. Four are regular hexagons with a short diameter of 29½ ft. The other four, really elongated hexagons, measure 29½ ft across the longer sides and 51 ft parallel to and midway between them. Each room has a trapezoidal-shaped work space off one of the sides (see diagram), this space also receiving light through a block panel.

The smaller rooms contain 1,050 sq ft and the larger, used for kindergartens, have 1,550 sq ft.

• What did it cost?—Although some interested observers freely predicted that cost of the addition would exceed $2.50 per cu ft, it came to only 92 cents per cu ft, or $16.50 per sq ft, well below the average expenditure for six other schools constructed in the vicinity during 1950.

Built to accommodate 250 pupils, the entire addition cost $377,000. This figure would have been even lower had not the auditorium been designed for 500 persons, for community use.

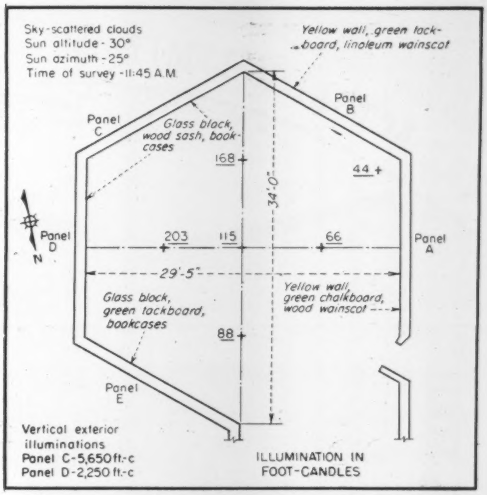
Each classroom is equipped with a drinking fountain, two toilets, sink, washbowl and a large storage closet. All other classroom equipment is movable; teachers can create an endless variety of arrangements by using storage cabinets as partitions.

The building itself has a reinforced concrete frame with two-way ribbed-slab floors, formed with removable metal pans. A built-up flat roof was employed; exterior walls are gray brick. Partitions are cinder block, in corridors, plastered on top half and faced with glazed tile in the bottom portion.

Two so-called gang washers, similar to those used by industrial employees, situated at the first-floor lobby entrance nearest the playground, solve the age-old problem of preventing pupils from going to classrooms with dirty hands. An entire class can wash in slightly more than a minute.

• Daylight setup—A typical classroom contains three adjacent 5-ft high panels of 8-in. glass block starting at the ceiling. Beneath two of these panels are 3-ft 10-in. wood-sash vision strips, with heat absorbing glass. The

CLASSROOMS of hexagonal shape permit convenient grouping of students, maximum flexibility, and improved space utilization. All desks and storage cabinets are movable.


Sky-scattered clouds
Sun altitude - 30°
Sun azimuth - 25°
Time of survey - 11:45 A.M.
Yellow wall, green tack-board, linoleum wainscot
Panel B
Panel C
Glass block, wood sash, book-cases
168
44
34'-0"
N
Panel D
203
115
66
Panel A
29'-5"
Glass block, green tackboard, bookcases
Yellow wall, green chalkboard, wood wainscot
88
Panel E
Vertical exterior illuminations
Panel C-5,650 ft.-c
Panel D-2,250 ft.-c
ILLUMINATION IN FOOT-CANDLES

DAYLIGHTING SETUP provides the excellent illuminations shown. Not one teacher has asked for shades over glass block panels. Artificial lighting is necessary only on darkest days.

ratio of glass block to floor area is 29.3%. Vision strip to floor area ratio is 12.3%.

The suspended ceiling of acoustic tile and flush fluorescent fixtures is 11 ft 2 in. high. Each room is equipped with a unit ventilator.

Gray linoleum tile is used as the floor covering. Interior panel A (see diagram) has a green chalkboard. There are green tackboards in panel B and on panel E below the glass block. Walls A and B are painted yellow.

The accompanying diagram shows the illumination in foot-candles in various parts of the classroom on a fairly average day (sun out but scattered clouds in the sky). Reflectances of the room components are given also.

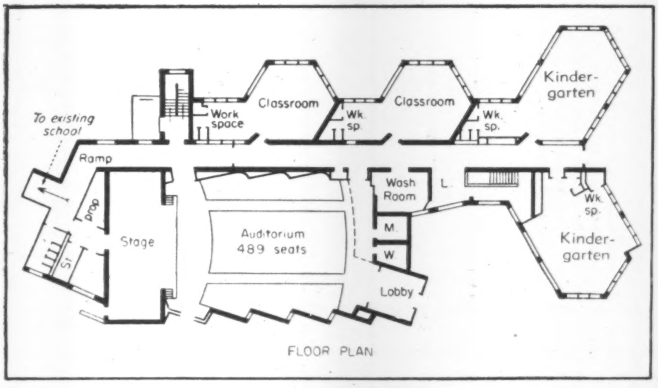
So well does the prismatic glass block reflect light across the room, according to Dr. Kentopp, that illumination from light reflected from the inside walls often exceeds 100 ft-c. There need be little concern about whether light is coming over the "left shoulder." But even when illumination on the darkest desk approaches 80 ft-c, seeing conditions are still very restful and comfortable because of the soft, diffused nature of the light.

• **Glass block best**—Dr. Kentopp (who is not engineer or architect, but is exceedingly well versed in school design) feels strongly that prismatic glass block is the most effective means of controlling and reflecting daylight across classrooms. Clear glass does not do the trick because in practice the glass has to be covered with shades to prevent excessive glare. The East Orange superintendent of schools has found venetian blinds to be somewhat effective, especially if flat slats are used. But this type is too expensive for most schools and plastic curved slats are substituted. These send much of the light upward rather than across the room. And the cleaning problem with venetian blinds is prohibitive.

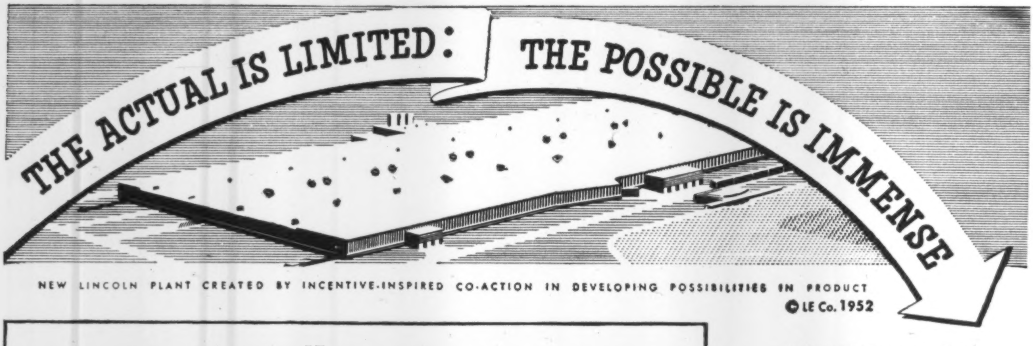
On the other hand, Dr. Kentopp holds that built-in control (i.e., glass block) was not completely satisfactory until recently because edges of blocks were excessively bright and produced sparkle or glitter. The latest glass block has succeeded in eliminating this. Used in the Stockton School addition was Pittsburgh Corning Corp's 8-in. PC Soft-Lite Prism B 55 glass block.

The auditorium, though making ample provision for adult use, is especially designed for children. Splayed walls were employed to improve acoustics.

Architect for the Stockton School and originator of the hexagonal classroom idea was Emil A. Schmidlin of East Orange, assisted by Russell Heter. Structural engineer was Olaf Egge of New York City. Dr. Kentopp coordinated the planning committee, composed of the above gentlemen, plus many teachers and civic officials.


Kinder-garten
Classroom
Classroom
Work space
Wk. sp.
Wk. sp.
To existing school
Ramp
Prop
St.
Stage
Auditorium 489 seats
Wash Room
L.
M.
W
Lobby
Wk. sp.
Kinder-garten
FLOOR PLAN

LAYOUT—Classrooms contain two toilets, sink, wash bowl and storage closet in trapezoidal-shaped work space.


THE ACTUAL IS LIMITED: THE POSSIBLE IS IMMENSE

NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT

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WELDED RIGID FRAME DESIGN SAVES 20% STEEL ...CUTS COST 8%

By **A. M. Strauss,** Architect
Fort Wayne, Indiana

THE new $3,000,000 Allen County Memorial Coliseum with its 224′ clear span is one of the largest rigid-frame structures in the country. By eliminating interior columns, that would have been necessary had a system of trusses been used, the rigid frame design has cut steel requirements by 20%. From past experience with this type of construction, an overall saving of 8% is anticipated over riveted design.

The 1200 ton structure consists of 10 rigid frames, each weighing approximately 67 tons. These frames are shop-fabricated in five unit sections of columns, rafters and crown sections. After delivery to the site, the three center sections are spliced on the ground before erecting. All field splices were made with the frame in a vertical position. Best erection time was two frames per week, using track-mounted erection towers for the ground welding of the center sections.

Total structural weight is 1246 tons, costing $230,000. The unit erection cost per frame is $3400, which averages $50 per ton.

HOW TO DESIGN ARC WELDED STRUCTURES

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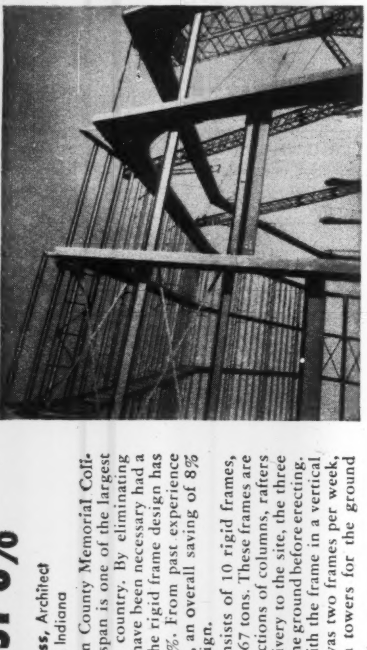

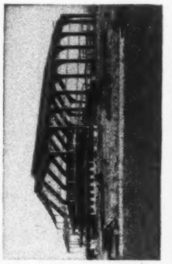

Fig. 3—Allen County War Memorial Coliseum, *Fort Wayne, Indiana. Fabricators: The Fort Wayne Structural Steel Company; General Contractor: Hagerman Construction Company; Erectors: Martin Erecting Company and The Machinery Company.*

WELDED DESIGN ALWAYS SAVES STEEL AND LOWERS COST

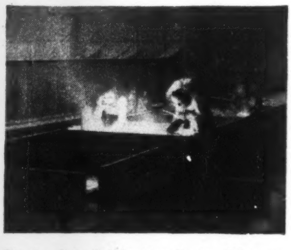

Fig. 1—Cuts Fabricating Costs—*Plate sections for columns and rafters are flame cut, drawn up by sledging and wedging, then tack welded with Lincoln "Fleetweld 5"* electrodes, using "Shield-Arc"* motor-driven arc welders.*

Fig. 2—Speeds Welding—*Webs and flanges are fillet welded with "Manual Lincolnweld"* at speeds of 26 to 30 inches per minute. Average time to fillet weld one side of 71 foot rafter is 90 minutes.*

**Preferred standards for electrodes and welders on quality work.*

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CLEVELAND 17, OHIO

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WET WEATHER—Placing fill in Yale Dam during the wet winter months of the Pacific Northwest was made possible by the character of material that was available.

DRY WEATHER—Fill placing operations during the other months of the year followed normal dry-weather procedures. The dam contains more than 4,000,000 cu yd of earth and rock fill.

Earthfill in wet weather

Placing the impervious core for an earthfill dam is no simple task during the abnormally wet winters of the Pacific Northwest. Yet that was what had to be done to meet construction schedules for Pacific Power & Light Co.'s 4,000,000 cu yd Yale Dam.

With fill work now substantially complete, diversion tunnel gates were closed Aug. 1, 1952, and all concerned are now confident that the first 54,000 kw generator will be on the line Nov. 1 as scheduled.

Primary factor that made the winter work possible was discovery and use of an impervious material that could be worked in all but the wettest weather. This material—impervious torrential conglomerate—is almost perfectly graded for maximum density, weighing 125 to 130 psf. This density keeps natural water content to a minimum. Thus, there is almost no shrinkage on drying and little bulking on wetting.

Experience at two other recent notable earthfill dams in the Pacific Northwest shows how unique unprotected winter impervious fill placing is. At the Corps of Engineers Mud Mountain Dam, a huge tent had to be used to protect the impervious fill area during wet weather (ENR March 27, 1941, vol. p. 452, and ENR Aug. 28, 1941, vol. p. 282). And more recently, fill work at Dorena Dam—also a Corps of Engineers job—was only permitted during the 75 dry days in mid-summer (ENR Nov. 3, 1949, p. 24).

But at Yale Dam the fill area was too great for economical use of tents and the time schedule necessitated winter fill placing.

The Nov. 1, 1952, date for on-the-line power generation was dictated by two factors. One is the urgent need for new power generation capacity in the Pacific Northwest to meet winter peak loads (ENR Oct. 18, 1951, p. 128).

• Originally a rock fill—Early plans for Yale Dam called for a rock-fill structure. But after work was substantially under way, the engineers found that the rock broke too finely. This meant an uneconomical amount would have to be handled. So plans were shifted to construction of an earth fill.

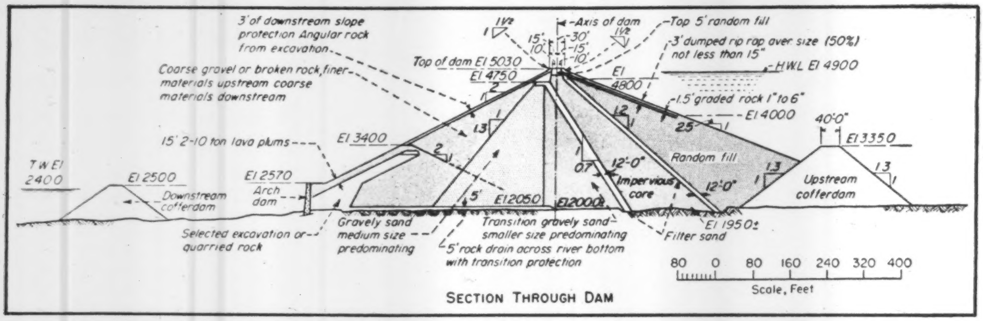
During the search for suitable impervious core materials, two types were located. One was an almost unlimited supply of the silty clay material normally used for such fill. And this had the advantage of being close at hand.

The other was the previously mentioned conglomerate located some distance away in what-was-believed-to-be a relatively limited supply—only 140,000 cu yd whereas the core contains in excess of 600,000 cu yd. (Later this borrow area was found to contain more than enough material.)

To assure an ample supply of fill material, the contractor waterproofed a 25 acre area of the silty material with a blanket of asphalt. Some 300,000 cu yd of material was protected at about 6¢ per cu yd. The plan was to use the limited supply of conglomerate during wet weather and the silty material whenever conditions were dry enough. This precaution proved to be unnecessary as the conglomerate supply was found to be ample. But it might have resulted in failure to meet the completion date.

The conglomerate material consists of almost perfectly graded material from fine silt through sand up to 1-in. gravel. It develops from sedimentary deposits made without segregation on upland terraces.

The impervious fill was placed in


3' of downstream slope protection Angular rock from excavation
Coarse gravel or broken rock, finer materials upstream coarse materials downstream
15' 2-10 ton lava plums
T W El 2400
El 2500
Downstream cofferdam
El 2570
Arch dam
El 3400
Selected excavation or quarried rock
Gravely sand medium size predominating
5' rock drain across river bottom with transition protection
Transition gravely sand smaller size predominating
Top of dam El 5030
El 4750
1V2
15'
10'
-Axis of dam
-30'
-15'
-10'
El 4800
-Top 5' random fill
-3' dumped rip rap over size (50%) not less than 15"
-HWL El 4900
-1.5' graded rock 1" to 6"
-El 4000
2
1.3
1
2.5
1.2
0.7
12'-0"
5'
El 2050
El 2000±
Impervious core
Random fill
El 1950±
Filter sand
40'-0"
El 3350
1.3
Upstream cofferdam
80 0 80 160 240 320 400
Scale, Feet
SECTION THROUGH DAM

IMPERVIOUS CORE SLOPES to assure maximum density resulting from continuous compactive action of random fill. This minimizes volume of select fill required.

all but the wettest weather. Some sprinkling of the conglomerate was necessary during dry periods. Compaction was accomplished by rubber-tired rollers.

The bottom 6-ft of the impervious core is made of the silty material. That's because the small grain size of this material will form a better seal against the rock.

• Sloping core design—The impervious core of Yale Dam is placed so it inclines downstream. The upstream edge of the core is on a 1.2 to 1 slope and the downstream face on a 0.7 to 1. Both faces are protected by a 12-ft wide sand filter.

Purpose of the sloping core is to get maximum compaction from the weight of the upstream shell. It was adopted when it appeared that it would be necessary to use a silt above the optimum moisture content. This design will also minimize the possibility of unequal settlement between the core and the shell—as might occur in the case of a vertical core.

The downstream toe of the dam is cut off by a concrete arch dam, 80-ft high. Purpose is to keep the penstock tunnels to the powerhouse as short as possible.

The engineers took a calculated risk in designing the diversion tunnels only for a 30,000 cfs capacity. Dry weather flows in the Lewis River are as low as 800 cfs. But flood flows range between 20,000 and 40,000 cfs. And the 24-year record flow is 86,000 cfs.

To minimize damage in case a flood flow overtopped the cofferdam, the heavy rock fill at the downstream toe was kept well above other fill work. Thus, if a flood had occurred—and it didn't—the pool formed above the dam would have been still. This would keep raveling to a minimum.

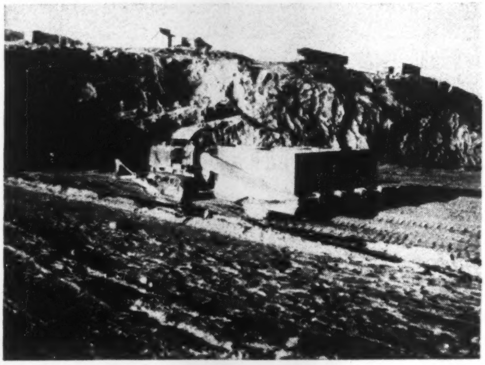
• Tunnel troubles—Driving the 18½ ft dia. penstock tunnels was troublesome at first because of caving. The basalt material is formed in columns at almost vertical angles. To save timbering costs (the tunnel will be lined), the contractor adopted a method of grouting ahead of excavation. About 100 ft of tunnel length would be grouted with the grout extending around the perimeter of the bore.

• Other details—The 323-ft high dam provides a static head on the turbines of 250 ft. Two 54,000 kw generators are now being installed.

Provision is made for addition of two more units that would utilize the diversion tunnel but require more powerhouse construction. But more upstream storage may be needed to make these economical. Or perhaps the system load characteristics will at some future date make present storage adequate for four units. Cost of the project is about $30-million.

Heading up the work for Pacific Power & Light is vice-president E. Robert de Luccia who is manager and chief engineer of the Lewis River development. PP&L have retained Ebasco Services, Inc., to design the work and supervise construction. J. B. McKamey is Ebasco's project manager. Constructing the work is Morrison-Knudsen Company, Inc., with G. E. Murphy as project manager.

DRAG-LINE CRANE EXCAVATES the select fill material—geologically known as impervious torrential conglomerate.



ARTICULATED RUBBER-TIRED COMPACTOR consolidates core material. No other compactive effort is necessary.

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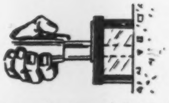
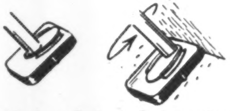
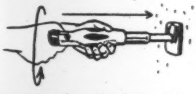


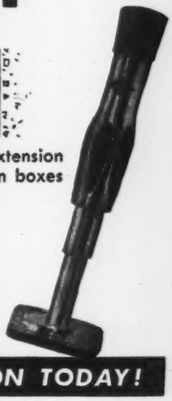
Exclusive Automatic Barrel Extension for fastenings inside junction boxes or other recesses.



Exclusive Swivel Safety Pad easily rotated for getting into close quarter work.



DRIVE-IT cannot be discharged accidentally due to the push and turn sequence. This, plus the large safety pad makes *DRIVE-IT* triple safe.



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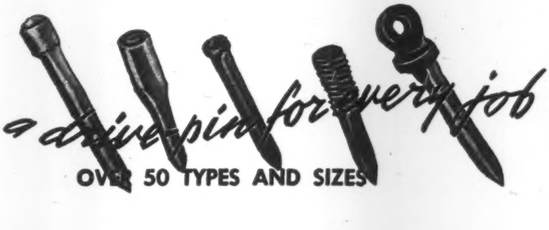

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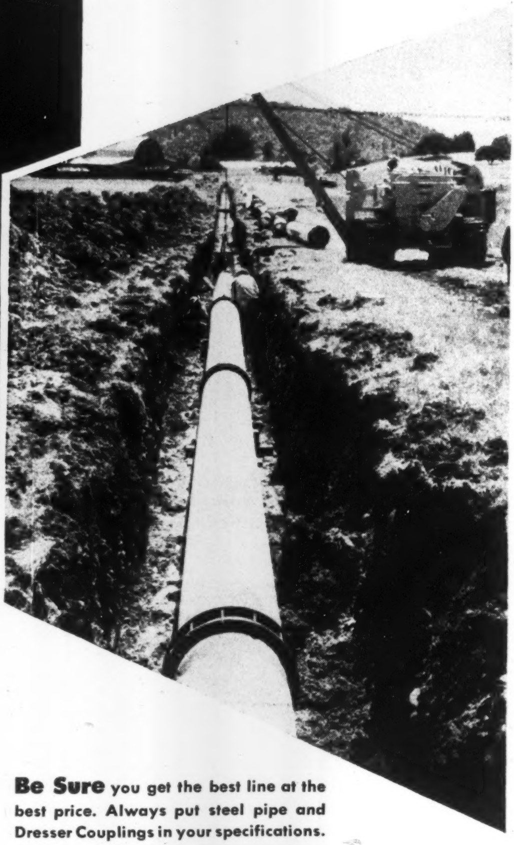

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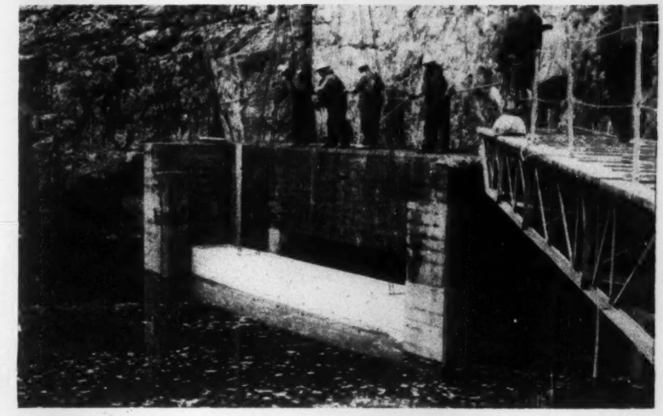
CONSTRUCTION CREW lowers one of the 14 concrete logs used to seal off the diversion tunnel at Detroit Dam.



CLOSING THE DIVERSION TUNNEL—One of the logs is dropped into place. At the same time water is being diverted into a smaller tunnel built to maintain stream flow while water is reaching outlet valves in the dam.

Reinforced concrete logs seal Detroit Dam diversion tunnel

Sealing Detroit Dam's diversion tunnel was called "Operation Headache" by construction men, but it went off without a hitch.

The 1,300-ft tunnel, through which waters of North Santiam River (Ore.) have passed during the past two years of construction, was closed by crews using 14 reinforced concrete logs, each 30 ft long and weighing 18 tons. Cranes located on an adjoining cliff lowered the logs into place, one on top of the other. Each was coated with mastic to act as a sealing agent. The logs in place, the usual discharge of water was stopped and the reservoir behind the dam took form. Within 24 hours water had risen more than 20 ft to the dam's first outlet valves through which the stream will flow during the summer. This fall the valves will be closed and water will start filling a reservoir that will extend 9 mi upstream. In the meantime, finishing touches will be made on the $67.5 million structure. Detroit Dam is a unit of the Corps of Engineers' Willamette basin flow control and power project in western Oregon (ENR Dec. 21, 1950, p. 39; Dec. 28, 1950, p. 33).

During the period between diversion tunnel closing and the time when the water reached the outlet valves, a stream was diverted through a small tunnel just large enough to maintain a flow below the dam. However, the river below the dam dropped 7 ft during this period. When water reached the outlet valves, the smaller tunnel was also closed. After they become thoroughly dry, both the large and small tunnels will be permanently sealed with concrete plugs.

The reservoir will hold 455 acre ft of water with a maximum depth of 400 ft. During late fall and early winter the reservoir will be held at minimum flood control elevation to provide storage space for excess water during runoff periods. This will materially aid the flood stage of the lower Santiam and assist control of its parent stream, the Willamette.

When downstream conditions permit, the water stored during each flood will be discharged as quickly as possible to provide storage space for future floods. In late winter and early spring, when flood dangers have passed, the reservoir will be filled at a uniform rate so that it will reach its normal capacity by early May. From May until fall, water will be gradually reduced.

Detroit Dam has a maximum height of 463 ft. Its length is 1,580 ft. Its volume is 1,500,000 cu yd of concrete.

Primary contractor on the Detroit project is Consolidated builders.

PANORAMIC VIEW of Detroit Dam on the North Santiam River. The view shows highway across top, partially completed powerhouse to the left at river level and the highway grade on the opposite bank.

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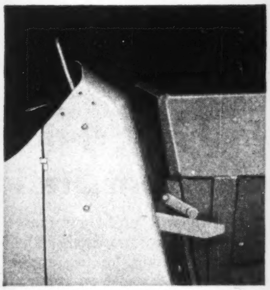

1 Body release lever is located at steering wheel, no reaching or stretching. Lever engages trip rod on Dumptor body . . .

2 Trip rod instantly releases latch hooks from body latch seat on the Dumptor chassis frame. Gravity dumps the load . . .

3 Body rolls on heavy-duty rockers. Snub chains attached to big coil-spring shock-absorbers check body at 70-degree tilt.

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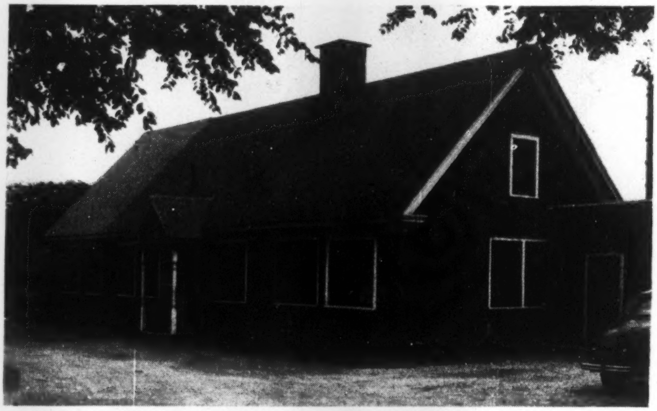
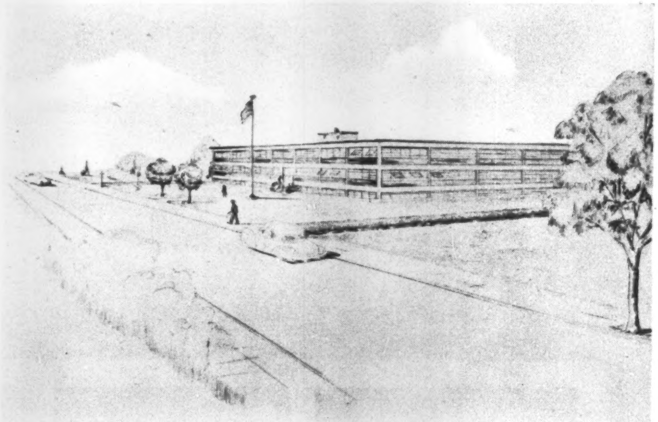


BUILDING WITH A PAST—The birthplace of sanitary science in the United States is due to be vacated.



REPLACEMENT FOR THE FUTURE—A new, more functional building will house Massachusetts' work in Lawrence.

Out of a distinguished past springs a new Lawrence Experiment Station

A SYMBOL of the birth and growth of sanitary engineering seems doomed to disappear from the American scene. Massachusetts' old Lawrence Experiment Station, for 66 years one of the world's foremost founts of sanitary science, is living out now-numbered days on the banks of the Merrimack River. Plans were completed a month ago for a new Experiment Station to be built by next August, also in Lawrence, Mass.

Work of the state's Department of Health will profit immensely by the move to new, more spacious quarters. Its work will be facilitated, but the station's fascination will suffer from the change.

There is a certain charm about the aged frame structure there in Lawrence, dwarfed as it is by the world's largest worsted mill (American Woolen). It is an unimpressive sight by any standards, except in the eyes of those to whom it is no mere building, but a monument of a sort.

• Hall of fame—For those who have known its work and its workers, there will be sadness in the passing of the place. To them it has been a reminder of names like:

Lemuel Shattuck, Bostonian whose 1849 "Report of a General Plan for the Promotion of Public and Personal Health" conceived for Massachusetts the nation's first state board of health.

Hiram F. Mills, in 1876 first engineer-member of that board. As chief engineer of the Essex Company, a development firm that built the dam and industrial canals at Lawrence, he donated its laboratory for state use.

John R. Freeman, whose findings in hydraulic research at the laboratory went abroad from Lawrence.

Allen Hazen, who let the world profit from his pioneer investigations into filtration practice at Lawrence.

George C. Whipple, who said of the place: "Results of its researches have been as valuable as the results of all other American sewage stations put together."

George W. Fuller, the man who fathered rapid sand filtration in Louisville, Ky.

Harry W. Clark, director of the station and of work out of which Boston's water and sewage works evolved.

These were but few; there were many. Scores came to Lawrence, saw what it had and what it did, then went out to establish and staff many other laboratories that were to develop.

But, fortunately, some men stayed on at Lawrence. Joseph A. McCarthy stayed—42 years. And as chief of the lab (since 1941), he carries on now—with 18 helpers, plus two men in the field—in the true tradition of his predecessors.

A small, balding man with a soft voice and easy-going manner, he knows the Lawrence story by heart. Listening to him tell it in his humorous way, one must strain to hear the soft-spoken words as they emerge through teeth clamped on an ever-present pipe.

• History of progress—Here's a bit of Lawrence's story as he tells it, in terms of dates and accomplishments he can rattle off like a well-rehearsed litany:

1887—sand filters

1890—trickling filters

1890—first work on industrial wastes; tannery, milk and wool-scouring

1893—chemical coagulants, found "to facilitate better filtration results."

1895—first statement on septic tanks

How to Frustrate a Mechanical "Wrinkle Sleuth"

Twin Disc Three-Stage Hydraulic Torque Converters helped George M. Brewster and Son, Inc., Bogota, N. J., contractors, keep the bell from ringing on this New Jersey Turnpike job near Seaucus, N. J. Installed on rugged Model KX-25T Buffalo-Springfield rollers—3-axle tandem type with a working weight from 14 to 20 tons—the Twin Disc Converters eliminate ridge-producing shifting—provide a smooth, even power flow which prevents roller slippage and sudden starts and stops.

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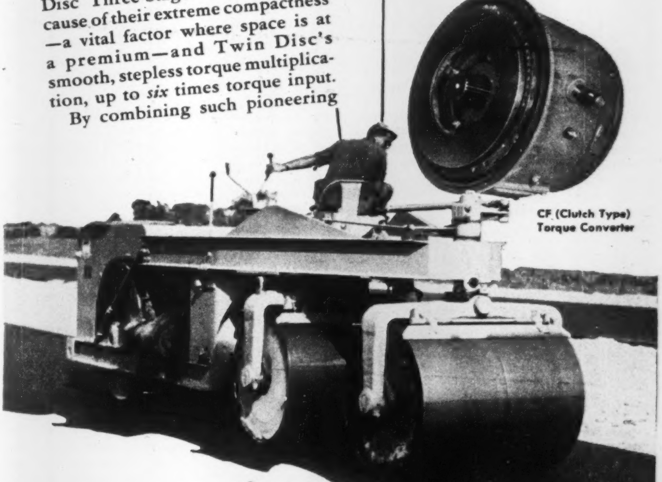
No Bong—No Bump! This "wrinkle sleuth" rings the bell when the pavement is too bumpy. It doesn't ring so often since torque-converter-equipped rollers are making smoother rolling—smoother roads—and smoother brows among contractors, public officials, vehicle owners—and other taxpayers!



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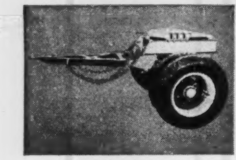
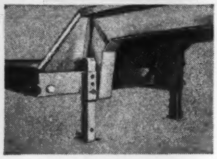
85 Models
. . . 6 to 67-ton capacity . . . single, dual or tandem axle . . . flat, drop or tilting platform
WITH FULL LINE OF JOB-PROVED ACCESSORIES



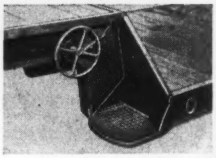
REMOVABLE DOLLIES

8 sizes—6 to 25-ton capacity—with semi-automatic fifth wheel for converting semi-trailers to full trailers in one simple operation. Provides economical "stand-by" for lay-over operations.



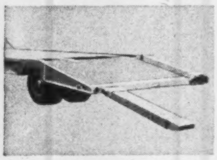
POST LANDING GEAR

Simplifies releasing loaded or unloaded trailers without danger of falling off of blocking. 66,000 lb. gross load capacity with 3 simple hand adjustments for equalizing uneven levels in roadbed.



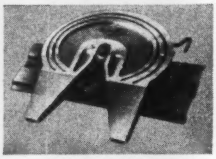
HAND BRAKE

Increases braking power . . . relieves tension on tractor brakes while holding loads on inclines, or for level parking. Ideal for locking trailer while hooking tractor. Located on left side of gooseneck.



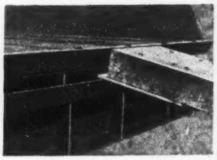
BEAVER TAIL

Increases platform area . . . lowers rear loading point, thus making load easier, safer without use of conventional skids. Short pair of hinged skids (shown) available at slight additional cost.



FIFTH WHEELS

Choice of Holland or Austin designs with capacities from 24,000 to 60,000 lbs. for handling gross king pin loads both on and off highway. Semi-automatic, full floating types with rubber mounting.



SKID RAILS

Furnished on side or rear channels for users who prefer skid rail method of loading. Also complete selection I.C.C. lights, air or vacuum brakes, extension brackets, lash rings, load binder, tire carrier, etc.

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LC-19 **LaCROSSE**

America's Favorite **LOW BED TRAILER**

and recognition of seepage requirements

1899—two-stage sludge digestion

1900—B-coli established as standard of bacterial quality

1912—first report on purification of sewage by aeration under presence of developed growths. (G. E. Fowler visited Lawrence from England in 1912 and in '14 the name activated sludge was given the process over there.)

1917—a rapid sand filter was operated on coagulated flow.

1942—the station went to war, working out standard practices for civil defense planners.

• Hope of future—Today, Joe McCarthy's workers busy themselves with the most modern of sanitation problems. Fifty percent of their efforts go toward answering industrial waste questions. Tasks of classified nature are carried out in problems of radioactivity.

On July 1 there started at Lawrence a one-year test of the molecular filter for water examinations. Lawrence is joining with about a dozen other laboratories across the country in this effort the Public Health Service has fostered to find full practical value of the filter. (ENR May 15, p 20).

Meanwhile, the day-to-day tests and investigations go on. And an occasional smaller laboratory is designed for a Massachusetts city.

• House-full of relics—All that transpires is accomplished amid the dust and debris of the decades. Neither flood nor fire has halted progress. Joe McCarthy recalls the Merrimack being desk-high in his cluttered little office during the 1936 flood. Fondly, he refers to his Rube Goldberg equipment as "the flotsam and jetsam of years of service." It is with respect that he points out "another pump that died in service", or, "the world's worst air compressor."

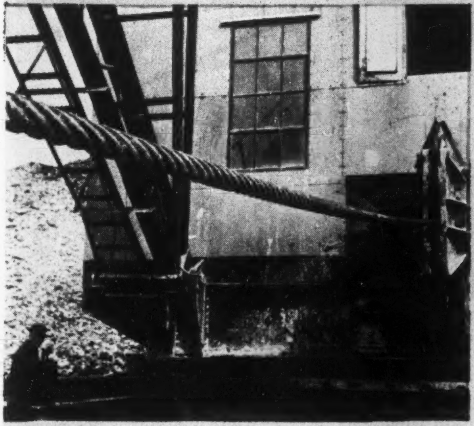
But there's lots of life in the old place yet, lots of fine equipment to be moved to the newer quarters. McCarthy calls the very elaborate census of equipment on hand "the second bane of my life." (Design and construction of the new building is the first.) There is some $90,000 worth of lab equipment to be moved.

When the move is made, it will have to be gradual, for work under way at the time cannot be interrupted.

Another $60,000 worth of equipment will be bought to go into the new station at the outset. And a new table of organization figured to work

(*Continued on page* 60)

The Proper Rope *plus* Proper Maintenance



This new Tiger Brand Drag Line Rope was designed especially to resist the extremely severe operating conditions encountered in this class of service. On one job where ropes lasted an average of 600 hours, this Tiger Brand Drag Line Rope was still going strong after 1100 hours—believe it or not!

Equals Longer Rope Life Lower Rope Costs

● Many prominent users of wire rope have found they can reduce wire rope costs as much as 50% by using a wire rope designed for the job. They get better rope service at lower rope cost by following this simple, job-tested system, with the help of the Tiger Brand Wire Rope Specialist.

Let this qualified expert make *sure* that you select, for each job, a wire rope that is strong enough to carry the load with an ample margin of safety . . . able to stand incessant flexing and sharp bending without failure of wires due to fatigue . . . built to take the most severe abrasion and crushing. Then make sure that every foot of wire rope you own is inspected, cleaned and lubricated *regularly*.

Engineers and contractors who follow this procedure tell us that they are getting twice — sometimes three times—the life they expected from Tiger Brand Wire Rope, plus greater safety for crews and equipment and freedom from rope-caused work stoppages, all of which means important money savings.

When you are in the market for wire rope, make full use of the engineering knowledge of an expert who has made a life-work of analyzing and solving wire rope problems. Just drop us a line and your Tiger Brand Wire Rope Specialist will be glad to consult with you. Meanwhile, why not send in the convenient coupon for a copy of our latest book?

SEND FOR THIS NEW BOOK. It contains specification data that will help you select the right rope for each application. In descriptive text, illustrations, diagrams and tables, it gives you complete information on types of rope, diameters, working loads and safety factors for all sorts of rope service.

More than a million tons of oyster shells have been converted into chemicals at this plant. The owners have found that Tiger Brand Wire Rope stands up best under these severe abrasive conditions, cutting rope costs, reducing down time and keeping equipment at top capacity.

specification data
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TIGER
BRAND
WIRE ROPE

American Steel & Wire
Rockefeller Building, Dept. A-8
Cleveland 13, Ohio

Please send me your new book, "Specification Data, Tiger Brand Wire Rope."

Name..

Company..

Address..

City.......................Zone....State.........

AMERICAN STEEL & WIRE DIVISION
UNITED STATES STEEL COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO · TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

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Excellay Preformed

UNITED STATES STEEL

GRACE
Asphalt and
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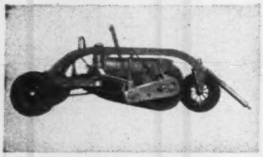
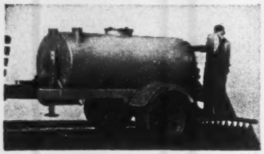
Equipment



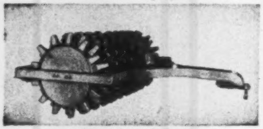
3 sweeper models, axle, engine or tractor powered.

Chip spreaders 8′ to 12′ width. Also asphaltic concrete spreaders.

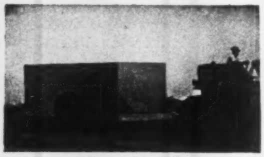
Rapid Fire circulating heaters heat and unload large tanks of asphalt.



Rapidspray Maintenance Distributors. Also heaters for production melting of barreled asphalt.



Sheepsfoot Rollers
250 to 600 psi.



Pneumatic rollers
7 to 50 tons.

W. E. GRACE MFG. CO.
6015 S. Lamar Dallas, Tex.

LAB CHIEF M'CARTHY will walk out this door for the last time a year from now to take over up-to-date facilities across town.

the new facilities includes 40 persons in the laboratory and two to five engineers in the field of stream pollution.

• Harvest of ideas—All the things that are wrong with the old station will be corrected in the new. There will be space to do the jobs that have had to be turned away consistently. The ideas that come of experience have been sown by the laboratory's chief and its staff. And consulting engineers—Tighe and Bond, working with Charles A. Maguire & Associates, Providence—have brought them to fruition in the plans just completed.

There will be 24,600-sq ft of space (as opposed to 11,500 sq ft in the old station). The three-story structure (ground, first and second) will be of reinforced concrete, with brick exterior. Continuous steel sash will afford maximum natural lighting and ventilation where it is desirable. Nonferrous sash will go into areas of high acid concentration.

Two city sewers cross the new 2½-acre site, one carrying mostly domestic wastes, the other fed with a good portion of industrial wastes. The new station will be set up to tap off either of these lines for test samples. Sewage will be pumped to a constant-level tank on the second floor, then fed by gravity to distribution tanks from which it will be taken at reduced (6 to 8-ft) head for use on the first floor.

Ventilation will be by far the outstanding mechanical feature of the building. Mechanical ventilation is provided in the design for all chemical and biological laboratories, plus other special-use areas.

The ground floor will house boiler plant for two-pipe, fin-radiation heating, pump room, machine shop, chlorine room, cold room, shipping and storage space, plumbing lab and engineering research area.

The first floor will provide space the old station does not, for conference, library, office and records, plus bacterial lab, more plumbing lab and added engineering research area.

Floor No. 2 will house chiefly the chemical lab, plus biology, radiological, air pollution, and other research laboratories. There will also be a lunch room here for employees. A freight elevator will connect floors, in addition to stairs. And a portion of the area designated for plumbing research will be open for full three story height.

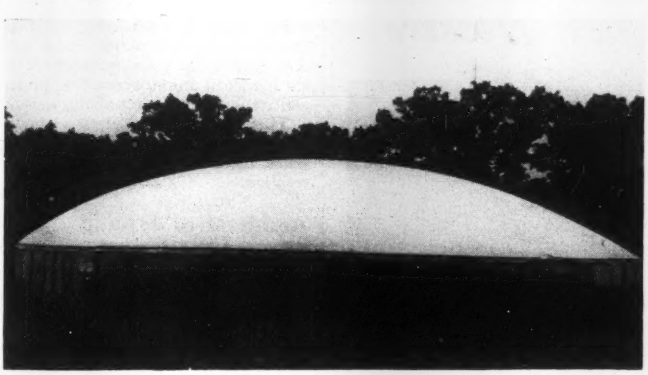
• How much?—Last fall the state legislature appropriated $402,000 for the new Lawrence Experiment Station. The consultants estimate cost, exclusive of land, landscaping and borings, at $400,700.

So by the expected dedication date, August 1, 1953, the New Station should be bought and paid for. And Joe McCarthy and company ought to be fairly well moved in.

What's to become of the Old Station is anybody's guess. For all these many years the state has leased the place from the Essex Company at $200 per year—with no formal written lease. The present structure dates to 1903 and is really seven buildings—each an afterthought to the others; the structure belong to the state. When the state moves out, it has, according to agreement, one year in which to move the building.

If the state chooses not to move the Old Station off the land, it reverts after a year to the landowner, the Essex Company.

A landmark is at stake.



Large test roof held up by air

Six building pioneers from Madison, Wis., have added a touch of realism to the theoretical dream of raising and supporting a roof by compressed air.

They have erected an experimental 75-ft dia dome-shaped building by pumping air into a plastic-impregnated fabric tied to a circular plywood wall. And it stayed up—through several rains and wind storms in that locality.

The six men, Richard Weatherwax, George Lawrence, Dale Turner, George Hajny, Glenn Roberts and Col. Paul Hohf, feel that their air bubble has possibilities as an inexpensive, quickly constructed shelter that might be used for a multitude of storage purposes.

Other engineers previously have gone so far as to propose an air-supported roof over baseball stadiums and other outdoor arenas to counteract inclement weather.

The air-supported roof is impervious to water and air and weighs about as much as canvas. It hangs limply until a blower fan on the perimeter begins sucking air in from the outside. In a half hour, the diaphragm becomes taut and is kept that way by continuous operation of the fan at reduced speed.

Construction procedure employed by the developers is simple. A ditcher cuts a 2-ft deep trench around the circumference. Sides are formed of ¼-in. thick 4x8-ft plywood panels placed in the trench with the 8-ft dimension vertical. Battens, 1x3-in. boards, seal the plywood joints and the trench is backfilled. Finally, the roof fabric is battened to the top of the wall and is sealed with a sponge rubber gasket.

The pressure in the building to support the roof needs to be only slightly above atmospheric pressure and is not apparent to occupants.

Mortar troubles traced to gypsum plasters

Useful information on the behavior of gypsum plasters in mortars has resulted from studies made by the British Building Research Station on brick walls. Researchers found that samples of expanded and deteriorated mortar contained an abnormal amount of sulfates. In fact, the sulfate content exceeded the quantity that might have been dissolved and washed out of bricks containing sulphates when the bricks became saturated with water in a few hours.

Although it was difficult to determine with certainty the composition of the original mix, evidence pointed to the presence of gypsum plaster, which had by some means been introduced into the mix.

There are two actions that can occur, both accompanied by expansion: First, in the presence of moisture, gypsum plasters will react with set portland cement forming calcium sulphoaluminate. The action is the same as when concrete is attacked by sulphate salts contained in ground waters.

Therefore, gypsum plasters, including Keene's and Parian cement, should not be used in mixes containing portland cement or hydraulic limes is the conclusion of the investigators.

The second action may occur if a gypsum plaster is used alone with sand, or in sand-lime mortars, and is exposed to damp conditions. With all types of gypsum plaster there is a possibility that the mix may be weakened, since gypsum is slightly soluble in

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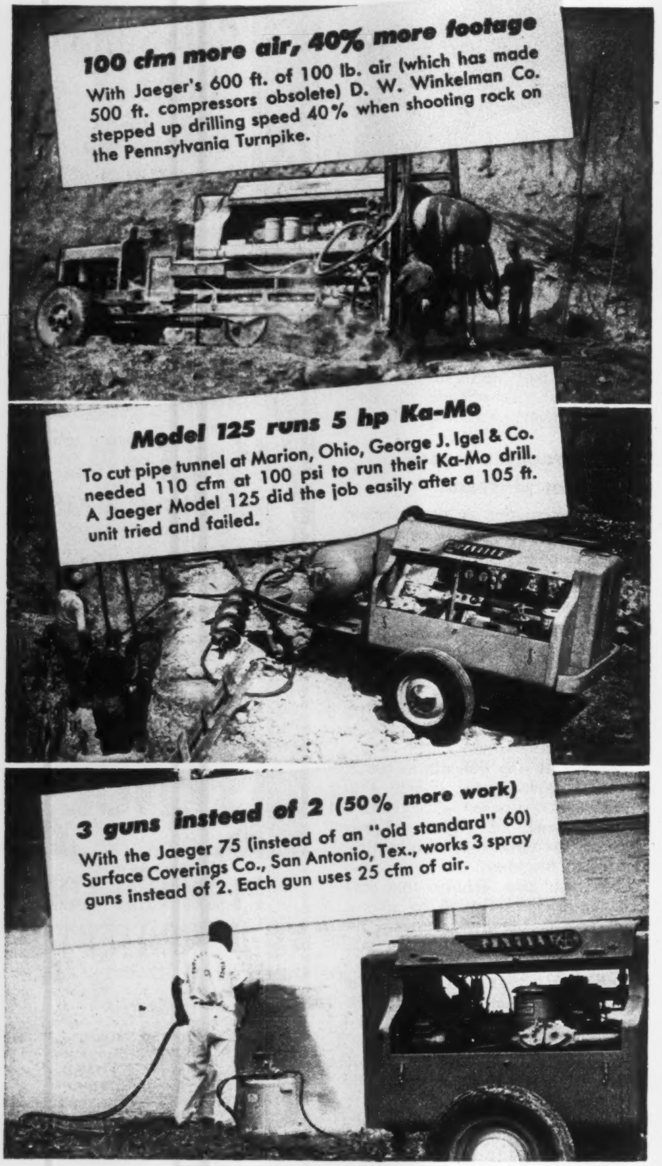

100 cfm more air, 40% more footage

With Jaeger's 600 ft. of 100 lb. air (which has made 500 ft. compressors obsolete) D. W. Winkelman Co. stepped up drilling speed 40% when shooting rock on the Pennsylvania Turnpike.

Model 125 runs 5 hp Ka-Mo

To cut pipe tunnel at Marion, Ohio, George J. Igel & Co. needed 110 cfm at 100 psi to run their Ka-Mo drill. A Jaeger Model 125 did the job easily after a 105 ft. unit tried and failed.

3 guns instead of 2 (50% more work)

With the Jaeger 75 (instead of an "old standard" 60) Surface Coverings Co., San Antonio, Tex., works 3 spray guns instead of 2. Each gun uses 25 cfm of air.

Want to cut costs? See your Jaeger dealer—or send for Catalog JC-1

THE JAEGER MACHINE COMPANY

200 Dublin Ave., Columbus 16, Ohio

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water. Further, with some types of anhydrous gypsum plaster there is a disk that hydration may continue in the hardened mortar over a long period and result in expansion of the mortar.

Therefore, gypsum plasters should not be used in mortar in any work exposed to the weather during or after erection.

Architect to develop new sandwich wall panel

William Lescaze, New York City architect, has been retained by the Porcelain Enamel Institute to design a laminated curtain wall panel that could be readily available as a sound building material.

The panel is to consist of a core of insulating material and interior and exterior facings of porcelain-enameled steel. Various designs are to be made to meet fire-resistance requirements in building code areas of 1-hr, 2-hr and 4-hr fire tests, and also for use in non-code areas. Cost of the panel is required to be under $5 per sq ft.

Other requirements are that the panel is to be prefabricated in as large a size as practicable, capable of withstanding a 30-psf wind load and erected from inside the building it encloses.

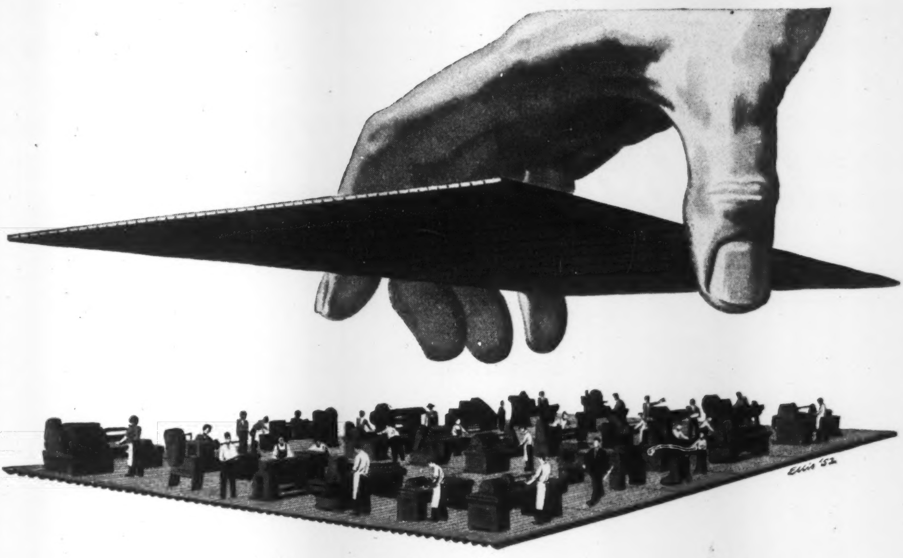
A member of the New York State Building Code Commission, Mr. Lescaze was associated with Robert L. Davison in the development of a porcelain-enameled steel wall panel for the New York Housing Trust in 1947. He also designed a sandwich panel (aluminum and homosote facings, rock wool core) for a prefabricated house for Reliance Steel Products Co. and a foam glass and steel panel for Republic Steel Co.

Groundwater recharge works well in Texas

Results of artificial recharge of ground-water at El Paso, Tex., are reviewed in a U. S. Geological Survey report soon to be published.

Studies, done cooperatively with the Texas State Board of Water Engineers, lead to the conclusion that present encroachment of salt content will be retarded, and in places halted altogether, by recharging Rio Grande waters through injection wells.

More than 177 mg of treated water from the river was injected into the groundwater reservoir during tests. It is possible to inject up to 6 mgd through four wells 1,500 ft apart in the Montana well field. And the city's Mesa well field will accept recharge water at an even greater rate.



THIS ROOF IS A "SOUND BLOTTER" THAT SOAKS UP RED INK

Noise in your plant is a costly wastrel. It scrapes nerves red-raw . . . handcuffs production . . . causes accidents.

Industrial noise causes a reported $4,000,000 a day loss in worker efficiency. And it has been the underlying cause of some pretty serious labor disputes.

Your answer to the problem is a wonderful new building idea: a combination acoustical-structural roof that costs as little as 75 cents per square foot . . . *installed.* In one compact unit you get: (1) Perforated light-gauge Holorib Steel Deck, which provides a smooth-finished metal-faced interior ceiling; (2) Sound absorbing element; (3) Efficient heat insulation; (4) Strong steel surface for support of finished roofing.

Holorib is lightweight. It saves you building time, labor, materials and money. It's practically maintenance-free. But, if you want to, you can wash it or paint it time and time again without hurting its acoustical efficiency a bit. And it's noncombustible.

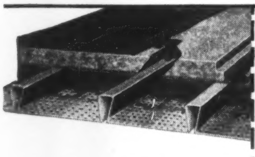
General Motors Technical Center, Warren, Michigan; Standard Press Steel Company, Jenkintown, Pa.; Simmons Saw & File Company, Fitchburg, Massachusetts . . . these are just a few of the companies taking advantage of this great Fenestra* development.

Write us for complete information—or have your architect write—and check on Fenestra floor panels and wall panels. Light-gauge Fenestra Metal Building Panels speed building and lessen the need for structural steel. Write Earle C. Hodges, Vice President, Detroit Steel Products Company, Dept. ER-8, 2286 East Grand Boulevard, Detroit 11, Michigan.

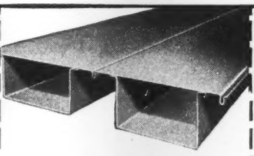
*Trademark

Fenestra METAL BUILDING PANELS

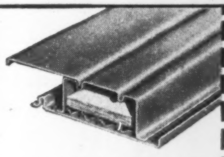
. . . engineered to cut the waste out of building



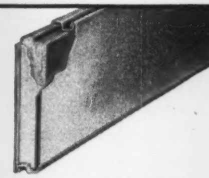
Acoustical Holorib for acoustical-structural roof. Width 18". Depth to 1½".



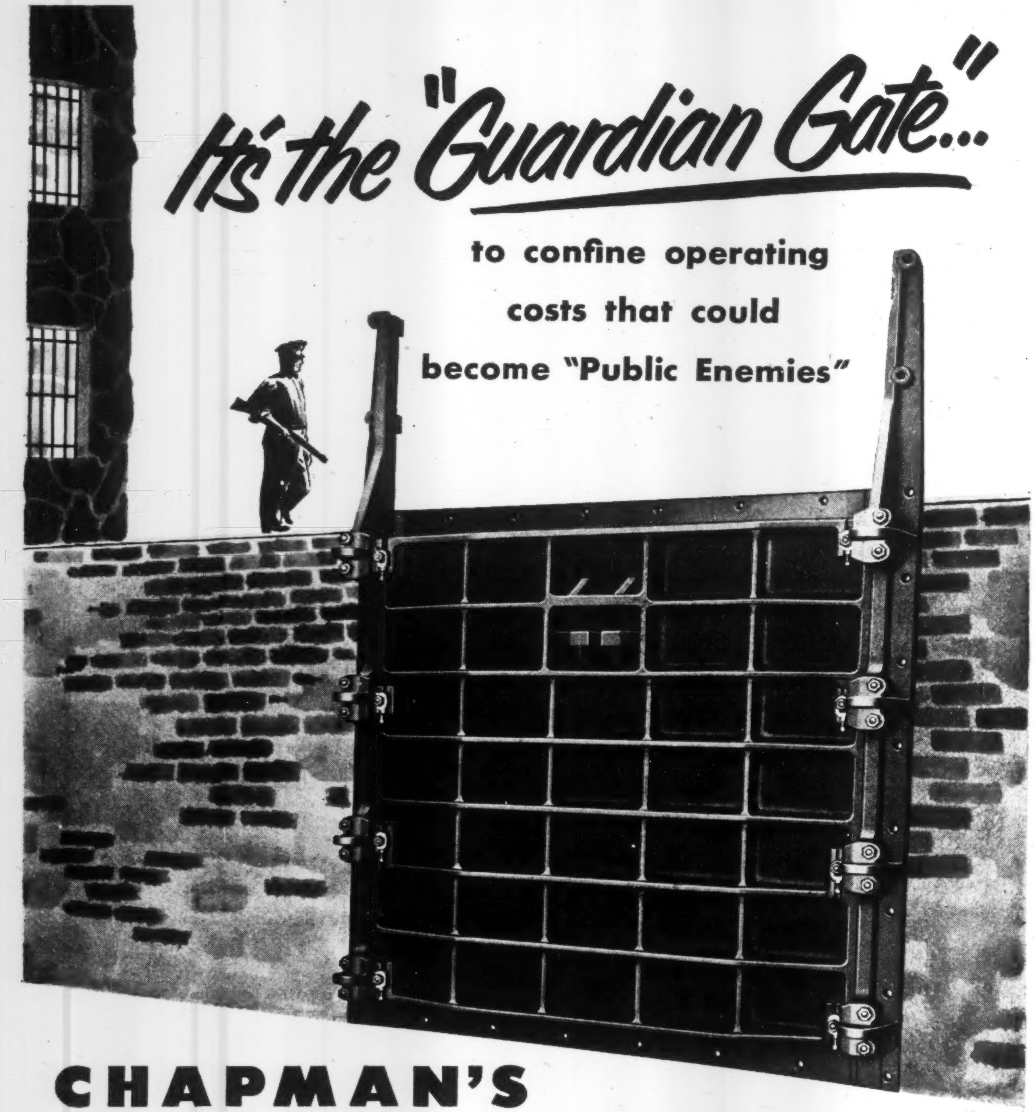
"D" Panels for floors, roofs, ceilings. Standard width 16". Depth 1½" to 7½".



Acoustical "AD" Panels for ceiling-silencer-roof. Width 16". Depth up to 7½".



"C" Insulated Wall Panels. Width 16". Depth is 3".


It's the "Guardian Gate"...
to confine operating costs that could become "Public Enemies"

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SLUICE GATE

You shut the gate on excessive costs the moment you specify Chapman Standard Sluice Gates. For installation is fast and foolproof, because the interchangeable stems and couplings need no match-marking.

And then you *lock* the gate on excessive costs . . . for repairs and replacements parts (when and if needed) can be straightway dropped into place *in the field*, without alterations.

What's more, Chapman Standard Sluice Gates can be specified with any type of operating control . . . manual, hydraulic, or electric. Catalog No. 25 gives complete details and specifications. Write for your copy *now*.

The CHAPMAN Valve Mfg. Co.
INDIAN ORCHARD, MASSACHUSETTS

MEETINGS

Pageant and exhibit inaugurate the "Centennial of Engineering"

Features of the Centennial of Engineering already under way at Chicago include the spectacular musical show, "Adam to Atom," and an exhibit of engineering progress occupying 10,400 sq ft of floor space and contributed to by many of the leading corporations of the United States and by the Civil Engineers Corps of the U. S. Navy.

"Adam to Atom" is being presented several times daily in the main theater of the Museum of Science and Industry. It dramatically portrays a panorama of mankind's advance by the utilization of engineering and scientific achievements. A large cast is directed by Mrs. Helen T. Geraghty who also directed the 1948-49 Railroad Fair pageant, "Wheels Arolling," seen by more than 2,000,000.

For the engineering exhibit the Westinghouse Electric Co. has supplied an electric staircase which carries visitors to the balcony area.

Aluminum Co. of America is showing a new construction technique utilizing the peculiar advantages of aluminum as a structural material.

International Harvester Co. is demonstrating the significance of mechanized farming.

Stewart-Warner Corp. illustrates the importance of machinery lubrication.

The Link-Belt Co. shows that machines can move material as well as change its shape.

General Motors calls attention to the radical change in tempo of our national life in the last 50 years.

General Electric Co. has in operation the world's largest lighting unit—a 50,000-watt lamp.

The Civil Engineers Corps of the U. S. Navy traces its history and shows how valuable engineering progress has been in the defense of our country.

The Cincinnati Milling Machine Co. tells the story of the machine tool industry upon which all others depend.

• **Many foreign visitors**—Late this month, 20 nations of Europe, South America and Asia will send about 500 distinguished engineers to participate in the centennial celebration of Sept. 3-13.

A group of 275 engineers from the Marshall Plan nations, western Germany and Switzerland, will start arriving here on August 22 for several days of programs. Members of this unit, guests of the Mutual Security Agency, will go to Chicago for the centennial celebration which is expected to draw some 30,000 engineers from home and abroad.

Besides these visitors, it is expected that 200 or more engineers from Asia and South America will arrive in Chicago early in September. India is sending a large number, and Nationalist China will be represented by a group from Formosa. These engineers will make the visit without United States financial aid.

CALENDAR

National Surveying Teachers' Conference, Camp Blackduck, Minn., Aug. 3-8.

Northwest engineers centennial, Multnomah Hotel, Portland, Ore., Aug. 9.

Seminar in industrial instrumentation for professors of engineering, Minneapolis-Honeywell Regulator Co.'s training school, Philadelphia Pa., Aug. 18-22.

Mississippi River Parkway Planning Commission, La Crosse, Wis., Aug. 21-23.

American Public Works Association, Ambassador Hotel, and Shrine Auditorium, Los Angeles, Calif., Aug. 24-27.

Pan American Union of Engineering Societies, 3d Congress, Tulane University, New Orleans, La., Aug. 25-30.

Sept. 4—ENR's Annual Cost Issue

National Council of State Boards of Engineering Examiners, The Antlers Hotel, Colorado Springs, Colo., Sept. 4-6.

National conference on industrial hydraulics, annual meeting, Hotel Sherman, Chicago, Sept. 4-5.

N. J. Society of Professional Engineers, semi-annual meeting, Wanamassa, N. J., Sept. 6.

N. Y. State County Superintendent's Association, Concord Hotel, Kiamesha Lake, Monticello, N. Y., Sept. 9-11.

National Constructors Association, Labor and Executive committees, Fairmont Hotel, San Francisco, Calif. Sept. 10-11.

International Symposium on the Chemistry of Cement, London, England, Sept. 15-20.

American Institute of Steel Construction, annual convention, Empress Hotel, Victoria, B. C., Sept. 29-Oct. 2.

Federation of Sewage and Industrial Wastes Association, Hotel Statler, New York City, Oct. 6-9.

California section, American Water Works Association, Huntington Hotel, Pasadena, Calif., Oct. 27-31.

HANDBOOK OF RIGGING
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HANDBOOK OF RIGGING

Condensed into this one book are all the tips, methods and techniques essential to more effective rigging practices in industrial and construction operations. Deals with everyday maintenance operations—with the transportation and handling of heavy machinery—with the erection and demolition of smaller size structures. Covers everything from ropes, hoisting chains and hooks, to slings and ladders. **By W. E. Rossnagel, Safety Eng'r. 321 pages, $5.50**

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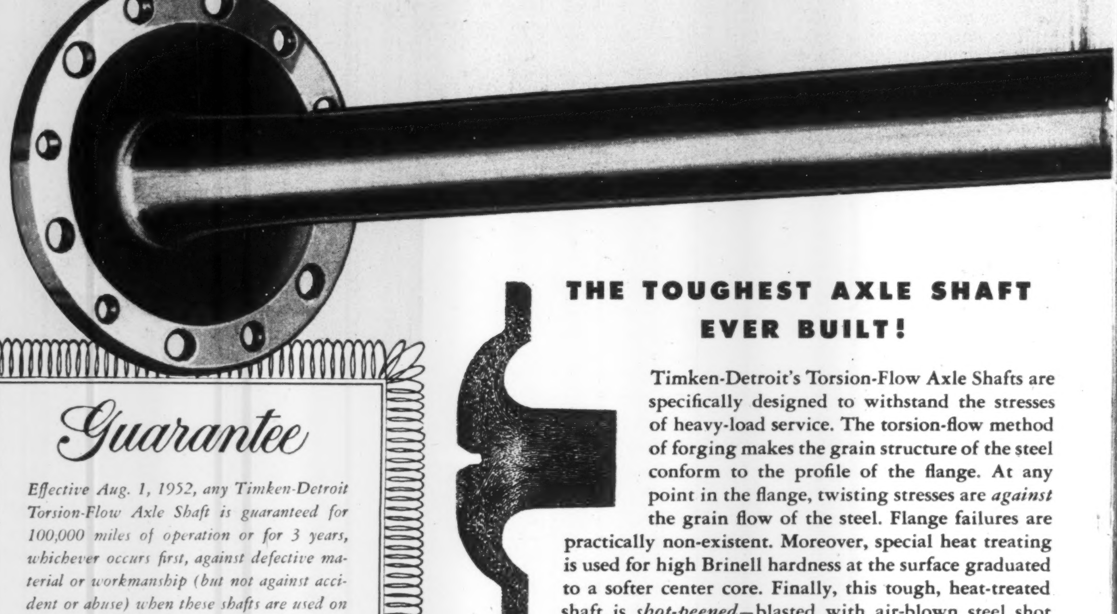

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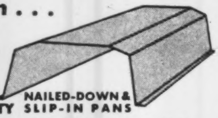

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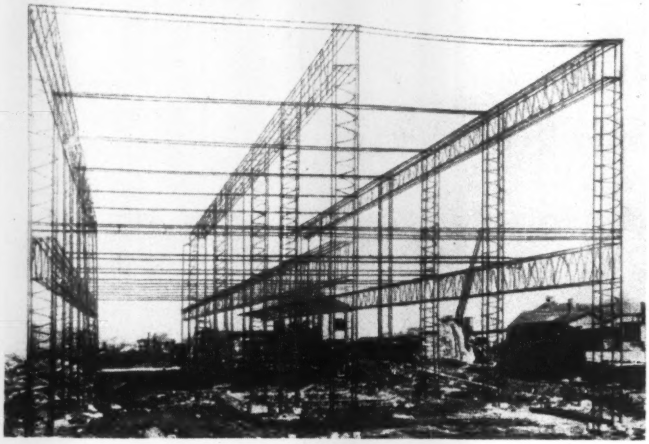

PREFABRICATED reinforcement is erected as a self-supporting structure in Great Britain, then carpenters build formwork and pour concrete.

Welded reinforcement goes up first

Another twist to the idea of prefabricating reinforcement is being used successfully for concrete buildings in Great Britain. Shop-welded "beams" and "columns" of reinforcing bars are erected as a self-supporting frame before any forms are built.

Advantages realized are: 1) radical reduction of site labor for placing reinforcement, 2) reduction in overall construction time at the site, 3) more freedom in tamping the concrete because there are no transverse stirrups (diagonal bars are used), and 4) no overlapping of carpenters and iron workers or masons.

[Jacob Feld, New York City consulting engineer, went even one step further and eliminated all falsework in his design of an 80-ft rigid-frame concrete bridge over a busy thoroughfare in the Bronx in 1945. The reinforcement is a series of bar joists which were erected first and had sufficient strength to support the forms and the freshly poured concrete (ENR, May 3, 1945 vol. p. 625).]

In the English system, all hooked bars are eliminated, as are bentup bars and transverse stirrups. Diagonal bars welded to top and bottom bars provide adequate shear resistance.

Columns are fabricated by welding a continuous helical wire to the main bars.

In a typical frame, columns are provided with end plates welded to the main bars that support the beam units. Grooves are cut in the top edges of the plates to receive the bars. Special clips secure beams and columns (of reinforcement) firmly to each other.

Tests performed by Her Majesty's Building Research Station showed that concrete beams with prefabricated reinforcing have bending strengths equal to beams with ordinary longitudinal bars and stirrups. In tests where shear resistance was the criterion, it was shown that the beams with pre-erected reinforcement have load capacities very close to the normal beams, even though there is much less shear reinforcement in the former. In general, a large saving in weight of shear reinforcement is obtained for only a comparatively small reduction in load capacity.

Load-deflection curves illustrate there is no significant difference of stress in the main bars, or in cracking, up to the failing load.

Further tests conducted in the laborotary, but borne out by field work, show that pre-erected reinforcing requires only one-twelfth the assembly time as do normal bars and stirrups. There is no danger of individual rods being displaced after erection.

The patented system is known in England as Frameweld reinforcement. Responsible for its promulgation is T. C. Jones & Co., Ltd. of London.

Alcan purchase deal dies, planners eye Africa

It was pretty clear this week that the proposed aluminum deal with Canada is dead—at least for this year. But new information indicates the deal could be made sometime in the next year or so.

The Alcan deal, pushed intensely by the mobilizers, would have called for the U. S. to guarantee to buy at least 200,000 tons a year between 1954 and 1958, with option to buy another 200,000 tons. The deal was pushed so strongly by both U. S. and Canadian government officials that members of the committee wondered if there wasn't more to the deal than appeared on the surface.

This week, though, Washington officials were figuring this way: British interests have underwritten two aluminum projects in Africa which eventually will produce two million tons a year. These projects, already launched, are located (1) on Volta River in Gold Coast Colony and (2) at Kariba Gorge on Zambesi River at the other end of Africa. Their production would equal total British consumption, leaving a major chunk of Alcan's planned production of 1.2 million tons in surplus.

That was where the U. S. was to come in—to underwrite a good portion of expanded Alcan capacity after the African production comes in. Congressional observers pointed out that it would be to the advantage of Britain to get its aluminum from the more cheaply produced African projects which will produce at a cost of between four and five cents a pound than from Alcan whose prices are comparable to the 19 cents a pound the U. S. pays domestic producers.

It is now believed that the Alcan deal may have been the subject of discussions between Truman and Churchill during the latter's visit, resulting in Administration pressure to put the deal over.

Meanwhile, DPA okayed a plan for Alcoa to buy 8.4 million lb of aluminum from Alcan now, and 4 million lb later to make up for a loss of about 13 million lb from its Massena, N. Y. plant which suffered severe damage by storm a few weeks ago.

In the meantime, the Aluminum Company of America has applied to the Office of Price Stabilization to increase prices by at least 10%. Higher wages may increase the cost of aluminum by 2 cents a pound in the near future.

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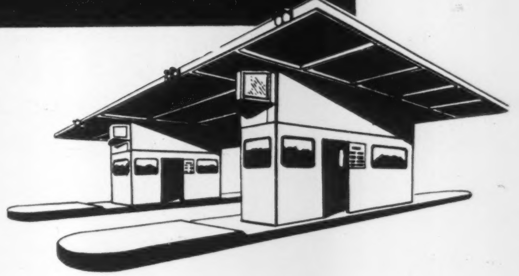

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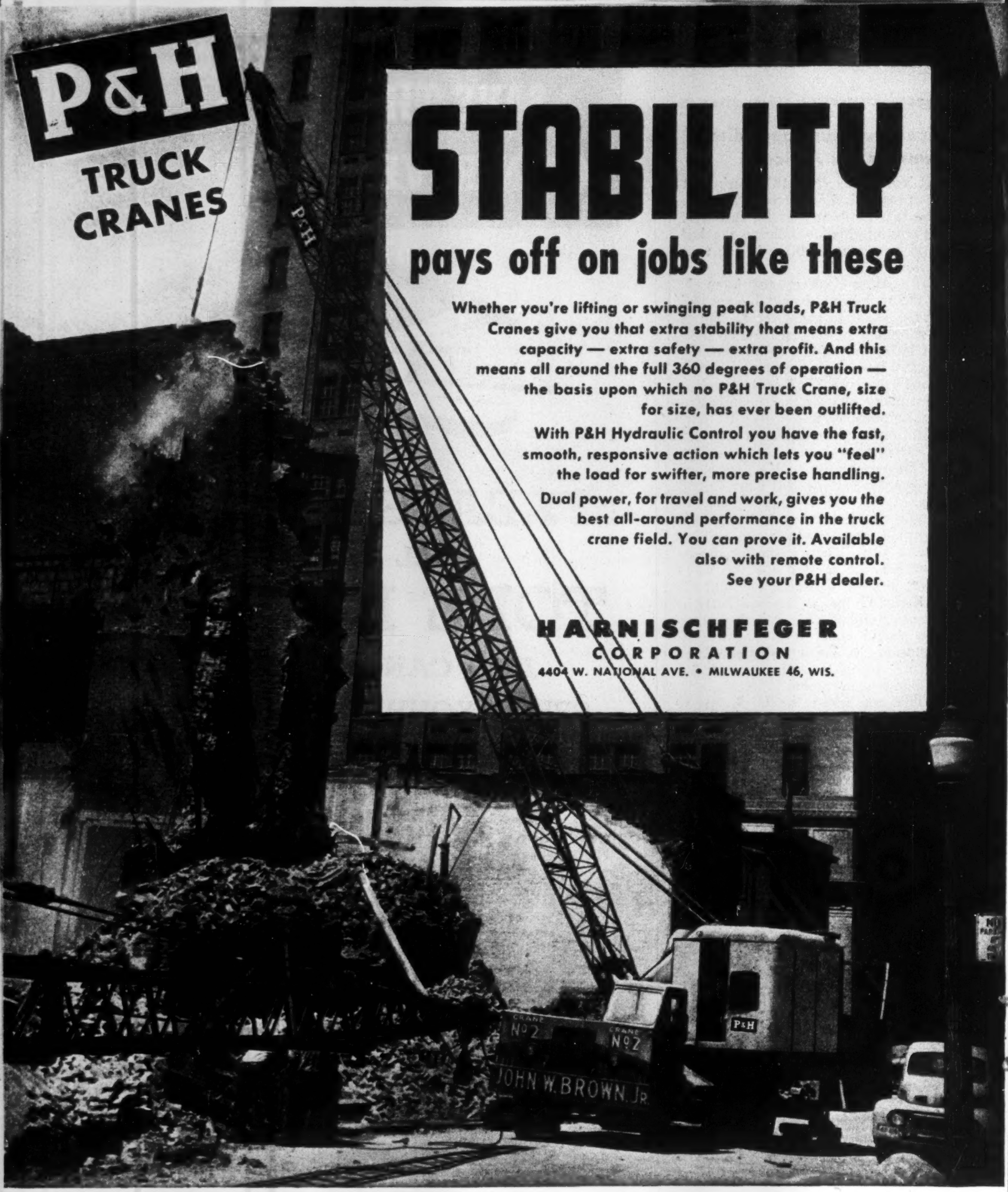

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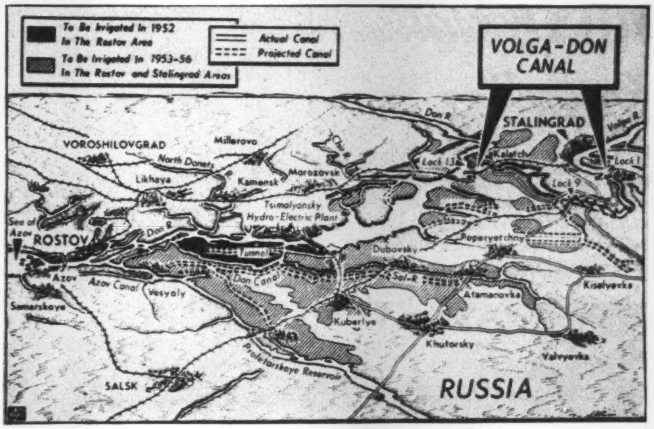
To Be Irrigated In 1952
In The Rostov Area
To Be Irrigated In 1953-56
In The Rostov and Stalingrad Areas
Actual Canal
Projected Canal
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CANAL
Don R.
STALINGRAD
Volga R.
VOROSHILOVGRAD
Millerova
North Donets
Chir R.
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RUSSIA

Russia completes Volga-Don Canal

Russia's great dream of linking its two important water roads, the Volga and the Don rivers, became a reality this month, according to USSR Information Bulletin, official Soviet propaganda organ in the United States.

As a result, 18,000 miles of navigable waters in the Volga and northwestern basins, and more than 7,800 in the Don and Dnieper basins will become a single network of deep waterways. This system will link all the seas of the European part of the USSR. The Volga-Don project will also eventually supply water to about 6,790,000 acres of arid land in the Rostov and Stalingrad regions. It will also provide cheap electric power for industry and agriculture in the irrigated regions, according to the Soviet organ.

Construction of the Volga-Don project began before the start of World War II. First steps were the construction of the White Sea-Baltic Canal and the Moscow canal. Under what was called the Greater Volga Plan the Russians constructed a hydro power project at Ivankovo and during the war years, the Uglich and Shcherbakov projects, with their large reservoirs.

Second phase of the Greater Volga Plan was construction of the Gorky hydroelectric station, now near completion. Latest steps taken are construction of stations at Kuibyshev and Stalingrad.

• **Design details**—In the canal route area, the Don waters are 144 ft above the Volga's level. This made pumping stations necessary to feed water from the Don to the canal and its locks.

By entering the canal from the Volga end, ships must climb the 288 ft of the Volga slope by a stairway of nine locks. After crossing a flat section of the divide the ships descend 144 ft to the level of the Don by means of four locks.

• **Russia's canal network**—According to the USSR Information Bulletin, the great importance of the Volga-Don canal is its communication tie with the Baltic, White, Caspian, Azov and Black seas. Certainly, the new canal will strengthen the intricate Soviet canal system. To the southwest of the Volga-Don is the Black Sea-Dnieper waterway and the Danube River. To the northwest and north transit connections link the Volga-Baltic, White Sea-Baltic and the Severnaya Dvina with the new canal route. The Volga-Don also connects with the Soviet capital by the Moscow canal, and through the Kama and its tributaries with industrial area of the Urals. When the Main Turkmenian Canal is completed, the Volga-Don will provide an outlet on the Caspian for the Main Turkmenian Canal and the Amu Darya.

International briefs . . .

• **Canadian Levitt**—For the first time in Canada, mass production of homes on the "Levitt" system has been started at Toronto where Saracini Construction Co. has started a $10-million housing project at suburban

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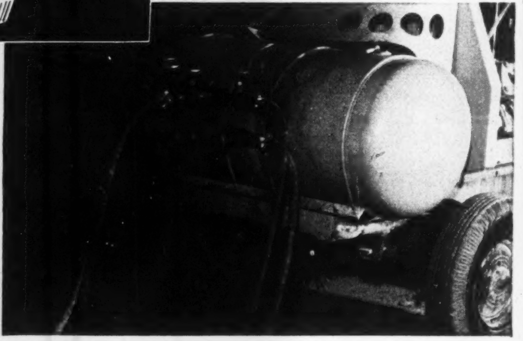

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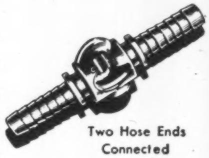

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Orchard Heights. The first development will have 360 ranch-type homes to sell at from $16,000 to $19,000. The development also includes ten apartment buildings with 30 suites in each, and a shopping center. Homes are estimated to cost about $7.5 million, apartments about $2 million, and shopping center $500,000. Facilities such as sewers, roads, water and electric power are provided.

• **Lone bidder**—Only bid for construction of two diversion tunnels, part of the Ambuklao hydroelectric power project, was received from a syndicate of Filipino Contractors. No formal offers were received from foreign contractors although the project was widely advertised in the United States by the visit of Filemon Rodriguez, general manager of the National Power Corporation. The NPC is the contracting authority. Target date for completion of the tunnels is May 31, 1953. The tunnels are to be 1,300 meters long and 7 meters in diameter. The whole project is scheduled for completion in 1955.

• **Guarantee against loss**—American businessmen and firms planning to make new investments in ten nations of Western Europe and Asia may now obtain a Mutual Security Agency guaranty protecting them against the risk of expropriation as well as currency inconvertibility. The countries with which MSA has the necessary agreements are Austria, Belgium, China (Formosa), Denmark, France, the Federal Republic of Germany, Greece, Italy, Norway and the Philippines. Convertibility guaranties are also available for new investments in the Netherlands, Turkey and the United Kingdom. It is expected that this will materially increase American investments abroad.

• **Money for Brazil**—The International Bank for Reconstruction and Development has made loans totaling $37.5 million for electric power development and railway rehabilitation in Brazil. A loan of $25 million will finance an electric power program in the State of Rio Grande do Sul. The borrower is a state-owned agency, the Comissao Estadual de Energia Eletrica (CEEE); the loan is guaranteed by the Government of Brazil. The second loan, of $12,500,000, was made directly to the Brazilian Government. Part of this loan will be used to rehabilitate the track, and right of way on the broad-gauge section of the Central do Brasil Railroad, Brazil's most important railway.

General contractor and technical supervisor of Standard Dry Wall Products, Inc., plan correction of an extreme condition existing in bleacher seats at Braves Field, Boston, Massachusetts.

THOROSEAL

SCORES ANOTHER

HOME RUN at the Braves Field

Above photograph shows THOROSEAL FOUNDATION COATING being grouted into upper, or wearing, surface of bleacher seats.

Right photograph shows soffits of concrete seats where concrete has blistered away from reinforcing rods. Rods were sandblasted and sealed with THORITE Patching Mortar and entire undersurface sealed with THOROSEAL.

General contractor, Henry Gironi, Allston, Massachusetts, an expert, with long experience in masonry maintenance, rehabilitation and surface protection, performs correction task on Braves Field, with satisfaction to all concerned. Waterproofing Products, Inc., Allston, Massachusetts, furnished the materials.

THORITE Patching Mortar was used for sealing rods and patching cracks and blisters in concrete. THOROSEAL FOUNDATION COATING was used for grouting wearing surfaces.

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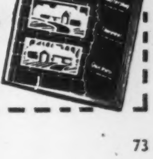

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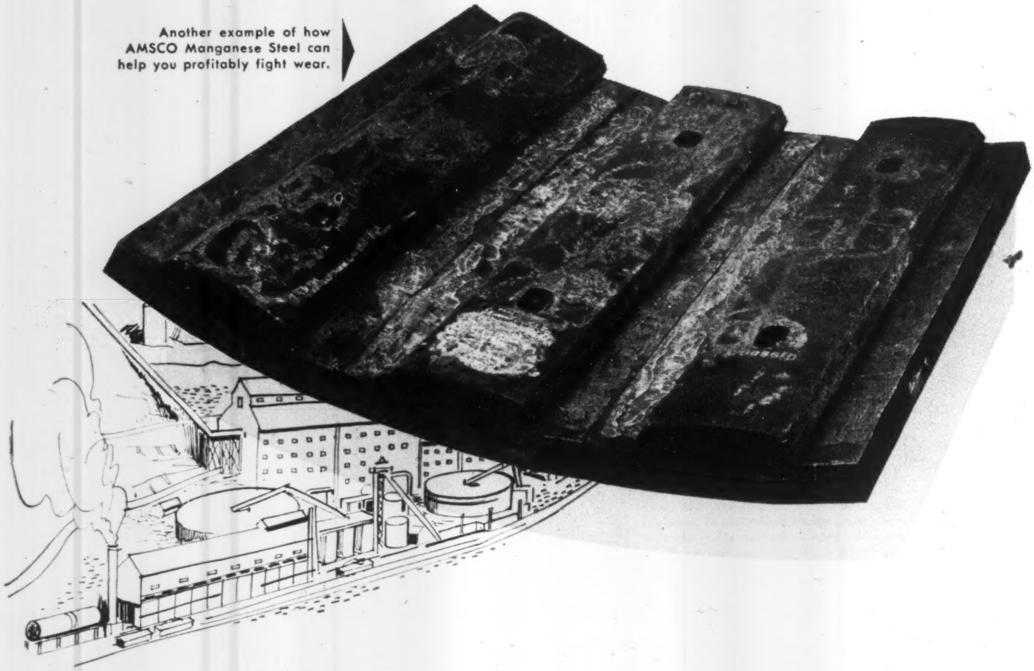

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In July of 1949 something new was tried. This mine installed AMSCO Liners equipped with a specially designed renewable lifter. Result? The AMSCO Liners milled 640,208 tons . . . over 6 times the tonnage of the liners formerly used. There were two important reasons for this tremendous increase in service life:

1. The liners were made of AMSCO Manganese Steel, the toughest steel known for high resistance to abrasion and impact.

2. The overlapping type AMSCO Renewable Lifters took the brunt of the load—reduced the need for replacing the more expensive liners. The lifters alone milled 340,322 tons . . . over 3 times more than the old installation!

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Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division, Joliette, Que. Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

Vogel gets Southwest division post

Colonel Herbert D. Vogel, the man who introduced large scale experimental hydraulics into the United States, has become Division Engineer of the Corps of Engineers' Southwestern Division with headquarters in Dallas.

He also takes over as Chairman of the Arkansas-White-Red Basins Inter-Agency Committee, a federal and state group drawing up an overall plan of soil and water development for one-eleventh of the United States. Now half way through a four-year study, this is the first inter-agency committee to start from scratch in formulating and integrating a comprehensive plan.

Colonel Vogel will also serve as a member of the Board of Engineers for Rivers and Harbors and as Department of the Army Representative on the International Boundary and Water Commission for the Rio Grande.

His territory includes the Texas coast and stretches across eight states from the backwater of the Mississippi to the Continental Divide. District Offices in the Southwestern Division are at Albuquerque, Fort Worth, Galveston, Little Rock and Tulsa. The military construction program in the Division is one of the largest in the United States and the civil works program covers a variety of coastal and river basin projects.

COLONEL HERBERT D. VOGEL, hydraulics expert, appointed to Division engineer of Southwestern division.

- **Career**—Before coming to the Southwest Colonel Vogel was Lt. Governor of the Panama Canal Zone. During World War II he saw service in the South Pacific and Philippines and after the war in Japan. Previously he was District Engineer at both Buffalo and Pittsburgh.

In 1930 he constructed, for the Corps of Engineers, the United States Waterways Experiment Station at Vicksburg and was in charge of its operation until 1934. A native of Michigan, he studied engineering at the state university before going to West Point. After graduating from the Military Academy in 1924, he studied at the University of California (MSCE, 1928), took a doctor of engineering degree at the University of Berlin in 1929 and returned to the University of Michigan to study experimental hydraulics in 1933. He has finished service courses at the Engineer School, the Command and General Staff School, and the Army and Navy Staff College.

- **Operations**—Despite his extensive formal training Colonel Vogel tends toward the practical approach, as indicated by a statement made in connection with his inter-agency work. "Academic knowledge is of value only when it has an ultimate application in the service of humanity," he said. "Our job in the Arkansas, White and Red Basins is not to show how much we know about soil and water development, but primarily to help the people make better use of their soil and water resources, and secondarily to give those who follow us in other basins and in other times the value of the experience we gain here."

He expects to spend a considerable part of his time on the work of the AWR Committee which is under nationwide scrutiny as a possible guide to future integrated basic natural resources planning. In addition to utilizing the regular forces of his Division and the Lower Mississippi Valley Division on the Corps of Engineers portion of the work, he has a small AWR staff in Tulsa, where the Departments of Interior, Agriculture and Commerce have similar offices. Also represented on the Inter-Agency Committee are the Federal Power Commission, Public Health Service of the Federal Security Agency of Louisiana, Missouri, Arkansas, Texas, Kansas, Colorado, Oklahoma and New Mexico.

Colonel Vogel succeeds Colonel Louis W. Prentiss who is now Assistant Chief of Engineers for Personnel and Administration.

(Men and Jobs continued on page 77)

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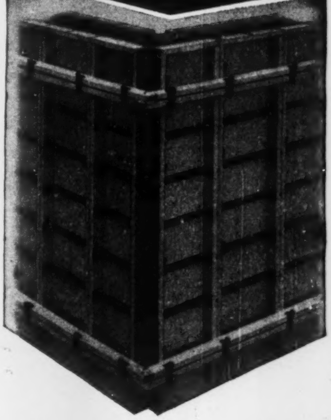
with
STEEL RIBS



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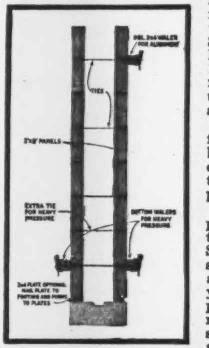
Symons heavy duty Steel Rib forms assemble and strip quickly and easily saving you time and labor costs. Because stripping is simple, and the steel rib reinforces the vital parts, Symons Forms last from 50 to 100 uses . . . this means cost per use is exceptionally low.

Try these forms on a rental basis. Rental charges apply on the purchase price.

To get a comprehensive picture of how Symons forming system works and its cost to you, send in the plans for your next job. We will study your needs and send you a form layout and job cost sheet—no obligation.



DBL. 2x4 WALES FOR ALIGNMENT
TIES
2'x8' PANELS
EXTRA TIE FOR HEAVY PRESSURE
BOTTOM WALERS FOR HEAVY PRESSURE
2x4 PLATE OPTIONAL NAIL PLATE TO FOOTING AND FORMS TO PLATES

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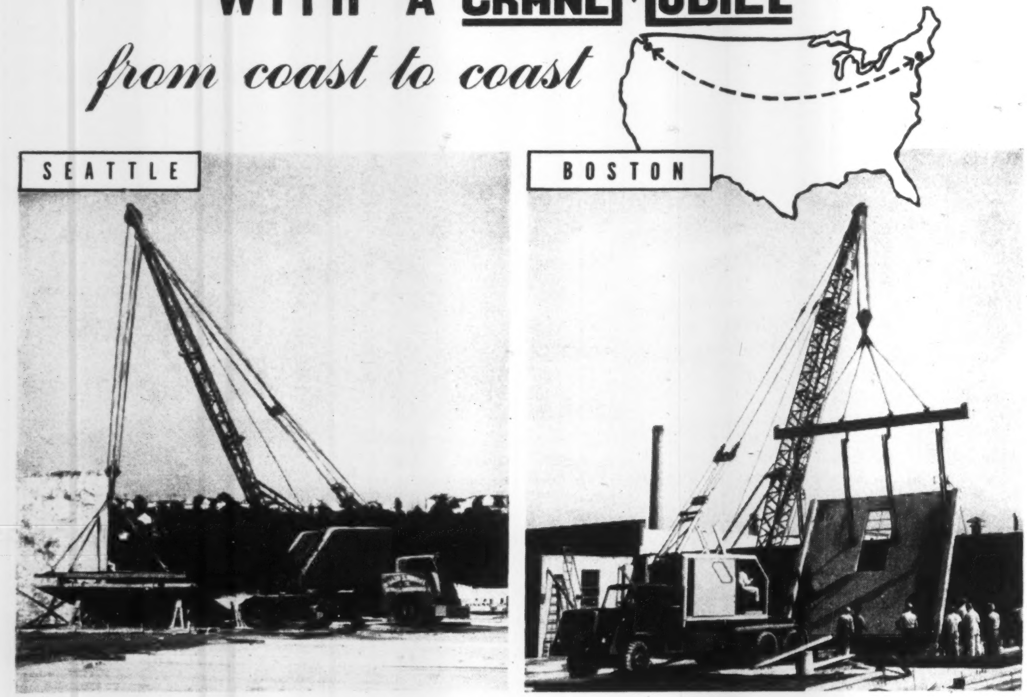
from coast to coast



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- √ Specially Designed Carrier
- √ High Road Speeds

For some time now we have been telling you the ease with which a Bay City will handle your heavy lifts . . . your high lifts. Here we show the CraneMobile on

Precast Wall Panel Construction

This unique system of erecting building structures involves precast panels weighing up to 20 tons. And that's where the Bay City steps in. The 190T61 CraneMobile with a 25 ton rating will pick a wall section over the rear without outriggers and "walk" it into position. And, on your next job it will handle up to 110 feet of main boom and a 30 foot jib for those high lifts. You will want to know more about this CraneMobile. Write for catalog or see your nearest Bay City dealer today.

BAY CITY SHOVELS, INC., Bay City, Michigan

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BAY CITY

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

Design firm flies abroad in mass vacation trip

H. G. Burr Co. flew 94 employes and their wives to Europe for a two weeks long tour of five European countries.

The firm specializes in industrial designing, mostly for steel companies.

The company closed up shop for two weeks on Saturday, July 26, and the whole staff took off for Brussels, Belgium.

The H. G. Burr Co. party spent three days in Paris after visiting Ardennes, Bastogne, Luxembourg, Basel, Zurich, Lucerne and Berne, and then went to London.

Last year the firm took 38 employes and their wives on a one week plane trip to Bermuda. At that time company President H. G. Burr promised it would be Europe in '52.

The three-year old Burr company has had a phenomenal record of growth in its field.

Besides Burr, the company owners include four engineers who once worked with him at another company. They are: H. R. Shuttleworth, C. A. Brown, B. F. Nettrour, and G. B. Heisey.

At the age of 18 Burr started his career by doing tracings for Jones & Laughlin Steel Corp. In 1940, five years later, he joined the C. H. Hunt Co. During World War II Burr was a navigator.

After the war Burr became chief engineer at Hunt. In 1949 he organized his own company.

E. G. Nielsen to head Reclamation Region 3

The Bureau of Reclamation's Region 3 will have a new director on August 31 when E. G. Nielsen succeeds E. A. Moritz.

Moritz is retiring after serving in the federal reclamation program since 1905. He has been regional director at Boulder City, Nev., since 1943 and will remain on call as consultant to the bureau.

Nielsen is a graduate of the State University of Iowa and has been assistant regional director since December, 1950.

Neilsen started his professional career with private companies in 1926 and joined the bureau as assistant engineer in Denver in February 1934. Two years later he was promoted to associate engineer and in June 1938, was appointed as an engineer of the

(Continued on page 79)

HERE'S TREMENDOUS COMPACTION

from a SMALL ~~FAST~~ HIGHLY MOBILE UNIT!

4500 ONE AND THREE-QUARTER TON BLOWS PER MINUTE are supplied by the JACKSON Vibratory Compactor. It propels itself and is extremely easy to move from place to place by means of a quick pick-up trailer unit on which the power plant, from which it operates, is mounted. On numerous jobs, such as compacting asphalt in highway patching and widening, paving walks, drives, railway platforms and crossings, or in compacting granular soils for concrete floor sub-bases, in trenches, close to footings and abutments, there is nothing that approaches it in time and money-saving ability; and no equipment, regardless of size or cost, does a more thorough job. It will compact 900 to 1200 sq. ft. of asphalt per hour very close to the maximum density of the mix used. In granular soils, two quickly made passes produce maximum density to a depth of 12 inches. See it at your Jackson Distributor, who has it both for sale and for rent, or write for complete details.

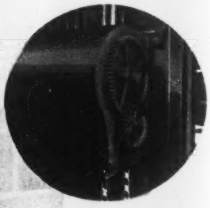
SEE OUR CATALOG IN GILLETTE'S HEAVY CONSTRUCTION PRE-FILED CATALOGS

JACKSON VIBRATORS INC.

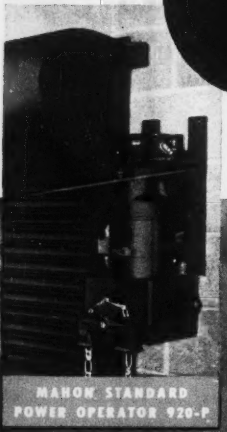
LUDINGTON, MICH.

U. S. A.

Rolling Steel DOORS



MAHON CHAIN-GEAR OPERATOR



MAHON STANDARD POWER OPERATOR 920-P

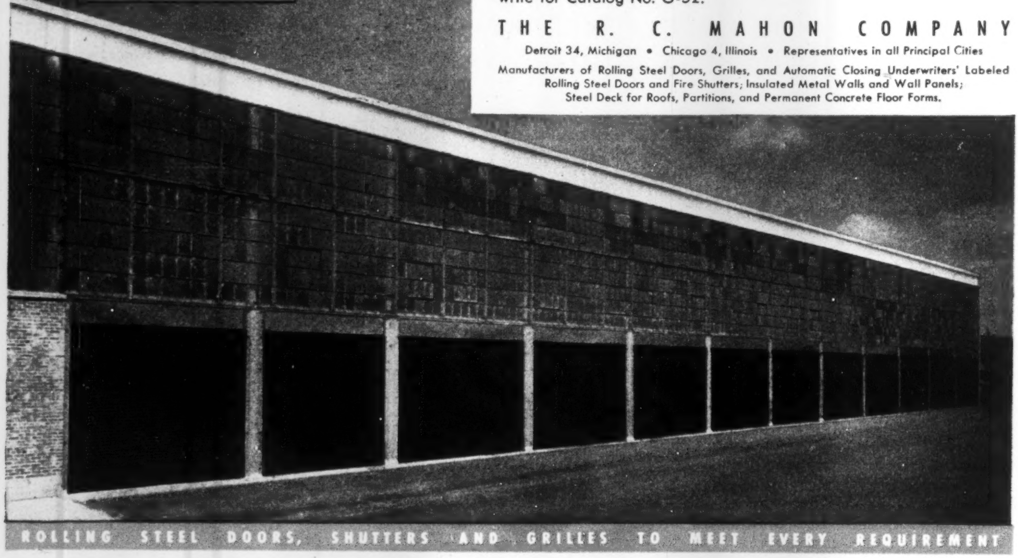
Manually, Mechanically, or Power Operated

Here again is illustrated a building in which only Rolling Steel Doors could meet the operating requirements. It is a foundry building with high clearance below trusses and continuous sash above door lintels to provide good natural light. Rolling Steel Doors were chosen because their vertical roll-up action occupies no usable space inside or outside the door opening, and does not create an obstruction above the lintel level. No other type of door offers these inherent advantages of space economy and compactness in operation. There are other advantages too . . . Rolling Steel Doors are permanent—their all-metal construction provides maximum security against intrusion and fire, and assures you a lifetime of continuous trouble-free service. Like most other things, there is a vast difference in the quality of the various rolling steel doors on the market today—a careful check of specifications will reveal this. For instance, the galvanized steel material for the interlocking slats of Mahon Rolling Steel Doors is chemically cleaned, phosphated and chromated to provide paint bond, and the protective enamel coating is baked on at 350° F. prior to roll-forming. This is just one of the extra-value features of Mahon Rolling Steel Doors—you will find others. See Sweet's Files for complete information including Specifications, or write for Catalog No. G-52.

THE R. C. MAHON COMPANY

Detroit 34, Michigan • Chicago 4, Illinois • Representatives in all Principal Cities

Manufacturers of Rolling Steel Doors, Grilles, and Automatic Closing Underwriters' Labeled Rolling Steel Doors and Fire Shutters; Insulated Metal Walls and Wall Panels; Steel Deck for Roofs, Partitions, and Permanent Concrete Floor Forms.



ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

Twelve of fifteen Mahon Power Operated Rolling Steel Doors installed in a new foundry building built by Spence Bros., General Contractors, Saginaw, Michigan.

MAHON

bureau at Salt Lake City. In June 1945, Nielsen was named regional planning engineer for Region 3.

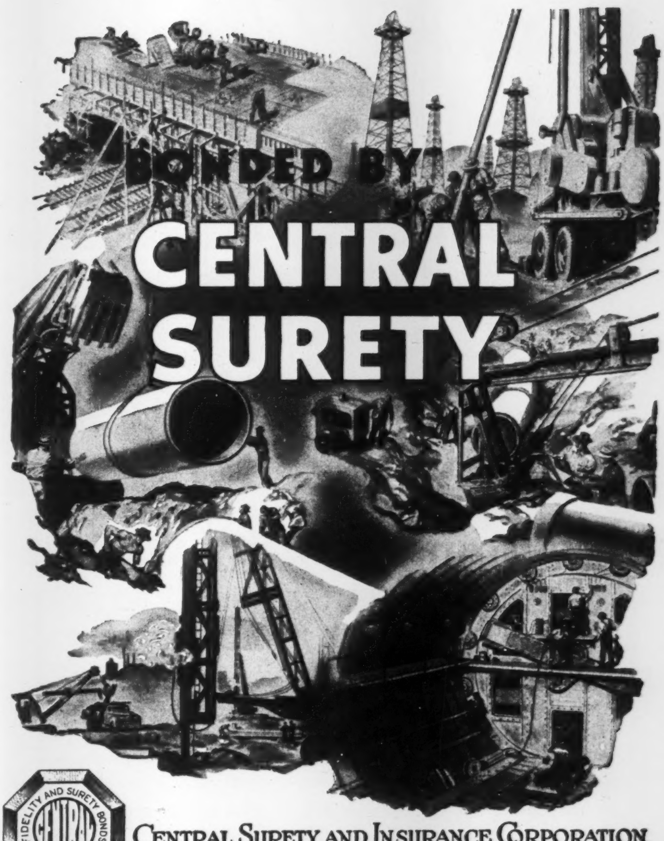
Careers . . .

• **Appointed**—**Lt. Col. Carroll H. Dunn** has been named to head the Army Engineers' Waterways Experiment Station at Vicksburg, Miss. Col. Dunn has served at General Headquarters of the Far East Command since 1949 . . . At the first meeting of the Delaware River Port Authority, **Frank L. Suplee, Jr.,** assistant bridge engineer of the Delaware River Bridge, was appointed to the new post of superintendent of that bridge . . . **Col. Lynn W. Pine** has assumed duties as Assistant to the Deputy Supply Officer (Logistics), Department of the Army, in the Pentagon . . . New chief engineer of the Columbus, Ohio, Division of Sewers and Drains is **Carl W. Schoene,** acting chief since the death of Orris Bonney . . . **Col. H. R. Hallock** will succeed **Col. Delvert B. Freeman** as Fort Worth district engineer. Col. Hallock has been acting district engineer since Jan. 1 . . . **W. J. Nelson,** U. S. Bureau of Roads highway engineer in Hawaii for two years, has been transferred to San Francisco.

B. Hudgins, former project engineer for Howard, Needles, Tammen & Bergendoff on the Denver-Boulder Turnpike, now is area engineer for the same firm on the southern 50 miles of the West Virginia Turnpike, located at Beckley, W. Va. . . . **Brig. Gen. Don G. Shingler,** division engineer, Missouri River division, Corps of Engineers, is being assigned to the Engineer Center, Ft. Belvoir, Va. He is being replaced by **Brig. Gen. W. E. Potter** . . . **Ian B. Packman,** a 1926 civil engineering graduate of Cooper Union, has been promoted from assistant general superintendent to general superintendent of maintenance of the Port of N. Y. Authority.

New manager of the Cleveland plant of Joseph T. Ryerson & Son, Inc., steel distributors is **John W. Queen,** a member of the company's staff since 1933. Queen, who replaces William C. Springer, will take over his new duties August 15.

• **Retired**—**Lt. Col. Clyde B. Pyle** has retired after 25 years of engineering work in structural design and construction. Col. Pyle also spent seven years as a teacher and eight years with the Veterans' Administration . . . **Prof. Ren G. Saxton,** veteran Oklahoma engineer educator, will retire as head of Oklahoma A and M College's School of Civil Engineering this month.



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The reason? Automatic compensation for friction material wear through a unique application of the toggle lever principle. The toggles never go over center. As friction material is dissipated, their constantly increasing leverage builds up pressure in almost direct ratio to the losses sustained.

Arrangement and location of the toggles assure a uniform pressure application pattern. Every square inch of facing area engages simultaneously and in absolute parallelism. Creation of highly concentrated heat areas to cause spot burning is prevented.

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Soft Engagement—because the toggles absorb the initial energy of the springs . . . and because the speed of the toggle action fades as the pressure plate approaches the friction element.

High Thermal Efficiency—because the massive plate, ribbed for rapid radiation, is cooled by positively generated air currents.

No Servicing—because these self-compensating, non-adjustable clutches insure automatic internal adjustment throughout the life of the clutch facings.

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OBITUARIES

Harry D. Watts, 67, former president and chairman of the board of James Stewart & Co., New York contractors, died at Southampton, N. Y., July 27. A 1904 graduate of the University of Maryland, he started with Wells Bros. Co., later becoming vice-president. From 1915 to 1923 he headed the H. D. Watts Co. and joined Stewart in 1924. He was promoted rapidly and was president and chairman from 1942 to retirement in 1946. The Stewart concern has participated in the construction of many notable buildings, including the U. S. Chamber of Commerce, Department of Labor and Home Owners Loan buildings in Washington, D. C., the U. S. Court House, N. Y. Postoffice, Federal Building, N. Y. Central building and 60 Wall Tower, in New York. It also worked on the West Side Highway, New York.

Joseph W. Mylchreest, 57, president and treasurer of Joseph H. Mylchreest, Inc., and Joseph W. Mylchreest, Inc. construction and building supplies enterprises that have been operated by the Mylchreest family for 100 years, died at Middletown, Conn., July 27. A 1919 graduate of Cornell, he was director of public works for Middletown.

Civil Engineer Claude L. McKesson, 71, died in Los Angeles July 22. An authority on road materials, McKesson worked with the Federal Bureau of Public Roads in construction of the Columbia River Highway and other major projects. He helped with the engineering on Los Angeles' Owens River Aqueduct.

Leonard B. Howe, 79, retired designing engineer for the Boston Transit Commission, died at Georgetown, Mass., July 24. He was on the commission staff 45 years, and had a major part in the creation of the Boston subway and tunnel system.

Thomas Fletcher, 76, concrete construction contractor, died in Jamestown N. Y., July 7. Born in England, Fletcher came here in 1906, settling in Jamestown where he was in the contracting business for 25 years.

Leo R. Alhand, 44, president of the A-W Construction Co., Indianapolis, died July 6. The A-W Construction Co. is engaged in the Indianapolis Redevelopment Commission's slum clearance project in the city's Northwest side.

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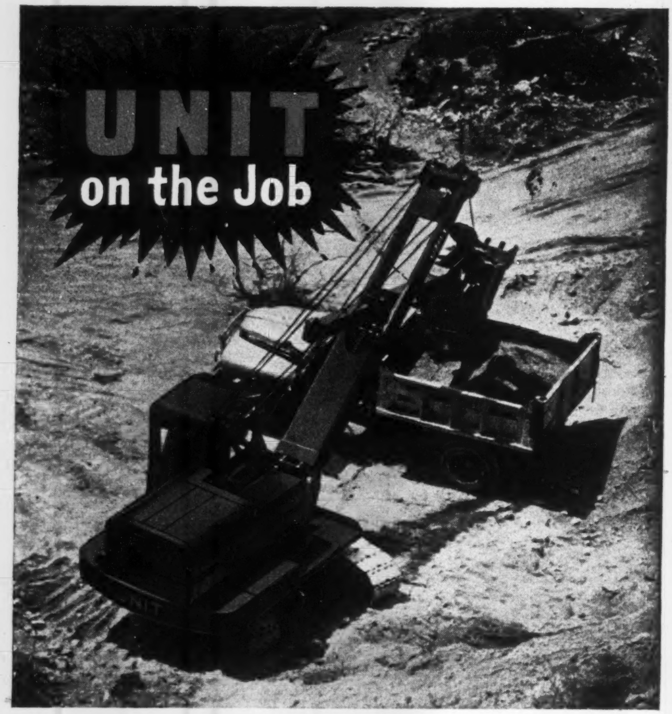

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OBITUARIES

John C. Penn, 70, professor emeritus of civil engineering who had been associated with Armour Institute of Technology and its successor, Illinois Institute of Technology, died July 20 in Chicago. He received his bachelor's degree in civil engineering in 1905 and his civil engineering degree in 1910 from Armour Tech, where he later became dean and director of civil engineering. He served as assistant city engineer of Chicago from 1905 to 1910 before joining the faculty as an instructor.

William H. Ellis, 68, president of Wm. H. Ellis & Son, East Boston, Mass., for the last 40 years, died in Boston July 20. He was widely known in bridge and waterfront construction. The Ellis company was founded in 1884 by Mr. Ellis' father.

E. Scarr Alexander, 65, of Durham, N. C., an engineer with the Nello Teer Construction Co., died June 19. He received his engineering degrees from Virginia Polytechnic Institute and Cornell University.

Joseph Jacobson, 57, retired chief of the map compilation section of the Army Map Service, with a record of 35 years of government service, died July 13 in Washington, D. C. He began in 1916 as a cartographer in New York City with the U. S. Army Engineers.

Augustine James Beakey, 80, retired civil engineer, died in Sacramento, Calif., July 19. He was employed by the California Department of Public Works from 1910 until his retirement in 1946.

G. S. Plumley, 69, civil engineer, died in Charleston, W. Va., July 19. He specialized in highway and railroad construction and was one of the oldest members of the American Railroad Engineers Association.

Ray A. Miller, 65, deputy superintendent of highways for Erie County, N. Y., died at Buffalo July 22. In the department for 35 years, lately he had been working on bridge design for current construction.

Ronin Ashton Scarborough, 34, of Lamar, S. C., State Highway Commissioner, was killed in automobile accident June 13.

Henry F. Goerss, 81, former building contractor of Buffalo, died July 10. He retired in 1945 following 25 years in the contracting business.

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Dragline, 2 to 3 yd.; large bulldozer; Ready-mix truck, 2 to 5 yds.; Pumpcrete outfit; Motor Grader; Bulk Cement Bin; Large Compressor; Equipment for Wellpoint System. Please furnish description and price.

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A DRAGLINE ATTACHMENT

for a 44 B Shovel

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GARRETT, PA.

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NEW CRAWLER TRACTORS

D8 - D7 - D6 - D4HT4 - D4 - D2 - TD24 - TD18A - TD14A - TD9 - TD6 - HD20 - HD15 - HD9 - HD5G

Cash Waiting

EVANS and EDELL

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Algonquin 5-3800

TWO - AUCTIONS - TWO

MON. AUG. 11th, NORTH PLATTE, NEBR., 12:30 P.M. Insley K-12 dragline, Link Belt UC-55 on rubber ½ yd, Osgood 200 dragline, Link Belt LS-70 dragline ¾ yd. Buckets-clamshells. #11 & 12 Cat patrols. 2 D-7's w/Cat dozers & 25 DDPCU, 2,200 & 5,000 hrs. TD-18A BRAND NEW—No hrs, w/BE Angle dozer DDPCU; D-4 & D-2 Traxcavators; 2 RD-7's, RD-4, R-2, other tractors. S-91 B.E. 8-10 yd scraper—used very little; LaP-C C-108 scraper; Tournacrane—10-ton—like new; 20-25 ton lowboy; '48 White tract Cummins Diesel-exc; many other pieces. Plains Cons Co., Inc., Owner.

MON. AUG 18th, TOPEKA, KANSAS, 10:30 A.M., 2 Northwest 25's, ¾ yd, one bought Feb '52—like new, Crane-drag Murphy Diesel, one bought in '50 D-318 Cat, Trench hoe-crane-drag, extended tracks—excellent; K-12 trench hoe-drag-crane; 2-ton truck crane on Feb 4x4; D-6 Cat w/hyd dozer—500 hrs; Good D-4 w/hyd dozer; D-4 Traxcavator—1,000 hrs; 3-HD5-G's w/Tracto-Shovels—all good; Hough ¾ yd Payloader—300 hrs; Patrols; Buckeye 160 trencher—exc; 7½ ton tandem Fed tractor Cummins Diesel—good; many other pieces. Topeka Excavation Co., Owner.

Both of these sales are complete liquidations. Write—Wire—Call auctioneers for full scale bills. EVERY PIECE POSITIVELY SELLS TO THE HIGHEST BIDDER IN BOTH SALES.

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The Auctioneers

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- 1—Heavy Duty Double Deck Scalping Screen, variable speed V-drive with motor, starter and delayed heater coils.
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- 1—36" x 72'-0" conveyor, drive and motor in steel frames.
- 1—30" x 125' conveyor with gravity take up, drive and motor in steel frame.
- 2—24" x 66' conveyors with motors, drives, in steel frames.

All motors 3 phase 60 cycle 440 V.

Quote age, location, condition and price each.

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KOEHRING MUD-JACK

Model 50 Mud-Jack mounted on 6.00 x 16 pneumatic tires complete with 24 ft. of 3 inch mud hose; 25 ft. of 1¼ in. water hose; rotary water pump; paddle-type mixer and two piston-type mud pumps.

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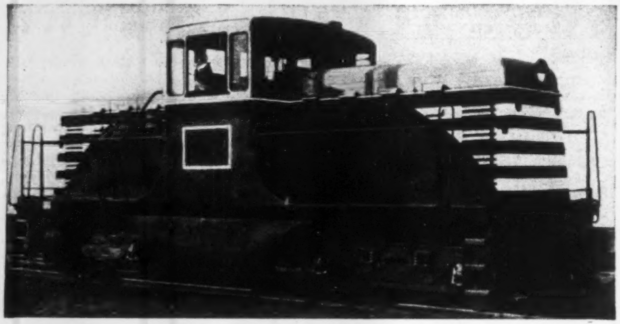

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35' LADDER
44" CUTTER
COMPLETE OUTFIT

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6 c-35 drafters

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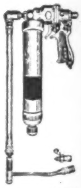

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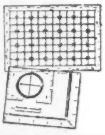

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Plant Never Used — Bargain

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41 B.E. & MARION 32 STEAM CRANES.
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Galion motor grader
Page ½ yd. bucket

For rent—cranes, draglines, backhoes, buckets, and all other accessories.

10002 Southwest Highway **TRACTOR & EQUIPMENT CO.** Oak Lawn, Ill.

EQUIPMENT FOR SALE

1—Osgood 1½-yd Combination Shovel and Crane, completely rebuilt.
1—820 Lorain 2-yd Shovel in excellent condition.
1—44B Bucyrus Erie Shovel, reconditioned.
1—750 Lima 1¾-yd Shovel, Diesel, excellent condition.

FOR RENT

1—Lorain Moto Truck Crane.
1—Lorain combination shovel, backhoe and crane.
2—TD-24 International Bulldozers.
2—Rear End Dump Euclid Trucks.
2—L. P. Scrapers 12 to 15 cu. yds.
1—500' Worthington Compressor with 2 wagon drills.
2—10 Wheel Ward LaFrance Dump Trucks.
1—34E Koehring Paver.
2—Finishers.
1—Longitudinal Finisher.
1—Blaw Knox Spreader.
8,500 lin. ft. of 8" Road Forms.

FS-4957, Engineering News-Record
330 West 42 St., New York 36, N. Y.

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You can always—
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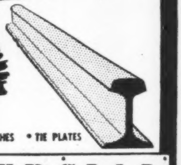

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TRACK SUPPLIES • STRUCTURAL STEEL • RAILS

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NEW—RAILS—Relayers

All sizes and weights. Also frogs, switches, spikes, bolts, tie plates, contractors' and mine equipment carried in stock.

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RAILS

NEW
RELAYING
SWITCH MATERIAL
ALL TRACK ACCESSORIES

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CHARLESTON 21, W. VA.

Official Proposal Advertising—pages 97-100

STRIPPING SHOVEL FRONT 2 C. Y.

30'6" Boom, 27'6" Square Stick
OFF LORAIN 820
Can be used on Lorain 79-80-82-820)
Used app. 4 months—like new
Replacement price $15,000 SACRIFICE $7500

CHEMICO COMPANY
145 West 63 St., N.Y.C., N.Y. MUrryhill 5-6826

FOR SALE

Generator, General Motors, Diesel, 6-71 series 92.5KVA 75KW with Silencer, Muffler and Fuel Tank. Only 500 hours operation — Excellent condition.

WALL STADIUM
ROUTE 34 BELMAR, N. J.
BElmar 9-1873

PIPE

FOR SALE—*Immediate Delivery*

C. I. Water Pipe A.W.W.A. Standard

BELL & SPIGOT—10 inch
12 inch
16 inch
20 inch
24 inch and other sizes
FLANGED PIPE— 4 inch
6 inch
8 inch
10 inch
12 inch

C.I. Water Pipe Fittings—B & S—and Flanged—All kinds and sizes

SOIL PIPE—EXTRA HEAVY—8 inch—10 inch 12 inch—16 inch

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111 Front Street Hempstead, L. I., N. Y.
Tel.—Hempstead 2-5535 or 2-8857

EST. 1904

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PIPE COMPANY INC.

ONE OF THE LARGEST STOCKS IN THE EAST

Seamless and Welded ⅛" to 26" O.D.
All wall thickness Manufactured.
Specialty large sizes.
Cutting — Threading — Flanging —
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IF IT'S MADE, WE HAVE IT!

Seamless and Welded — Every Size and Wall Thickness—Cast and Wrought Iron, Steel, Alloys

POWER PIPE FABRICATING
Bending, Coiling, Flanging, Threading, Beveling, Lining, etc.

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Phone EVergreen 7-8100

PIPE FOR SALE

24" d. Corrugated Galvanized in 30' lengths—approximately 5500'. Used once for Ventilation Duct in 12' d. Tunnel — REASONABLE & stored in Cleveland, Ohio.

Contact: **THE KALILL CO.**
4161 W. 150th St., Cleveland 11, Ohio
Phone: CL-1-3848

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
September Materials, and Labor Prices will appear in September 4, 1952 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash. dis. not deducted			SAND AND GRAVEL Per ton. carload lots			CRUSHED STONE Per ton. carload lots		CRUSHED SLAG Per ton. carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixed 1:2:4, over. 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$3.81	$3.50	3.30	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.19	$0.19	$11.50
Baltimore	3.76	3.45	3.38	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a	10.80
Birmingham	3.11	2.81	....	2.24n	2.24n	1.94n	2.50	2.50	1.10	1.30	.165	.165	9.75
Boston	4.01	3.69	3.81	2.50a	2.50a	2.50a	1.50a	1.60a	....	....	.20	.22a	11.50h
Chicago	3.33	3.02	....	3.00‡b	3.00‡b	3.40‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	11.94
Cincinnati	3.53	3.40	3.32	2.09‡c	2.14‡c	2.14‡c	2.44‡e	2.44‡e	....	....	.21	.225a	10.95
Cleveland	N. A. in C. L.		....	2.05ef	1.85f	1.70	3.81a	3.81a	2.85‡	2.85‡	....	.23	13.00g
Dallas	2.95	2.65	2.70	2.18	2.28	1.84	2.22	2.38	....	....	.125e	.215	9.30
Denver	3.89	3.59	3.89	1.85	2.00	1.20	....	....	...	....	.22	.255a	10.50
Detroit	3.27	3.00	3.05	4.25‡b	4.25‡b	3.75‡b	4.25‡	4.25‡	4.25‡	4.25‡	.19	.20a	10.30f
Kansas City	3.30	3.03	3.15	1.85‡	1.85‡	1.50‡a	2.00‡a	2.00‡a	....	....	.18ag	.23c	11.35b
Los Angeles	4.00a	3.60a	4.72	1.95a	2.20a	1.95a	2.08a	1.95a	....	....	.11fm	.22m	10.43lh
Minneapolis	3.80d	3.49d	3.41	2.30‡ag	2.30‡ag	1.35‡ag	2.50‡ag	2.50‡ag	....	....	.21ik	....	11.65fi
Montreal	3.01ac	2.86ac	....	2.50	2.50	2 25	1.05ij	1.30ij	....	....	.20	.20a	9.65ek
New Orleans	3.20	3.02	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	3.86	3.55	3 43	2.35bk	2.35bk	1.60bk	2.50bl	2.50bl	....	....	....	....	11.80an
Philadelphia	3.43/3.82‡	3.12/3.49‡	3.43/3.48‡	2.75‡	2.75‡	2.15‡	2.10‡	2.15‡	1.75	1.65	.22/.25	....	11.50
Pittsburgh	3.32	3.04	3.32	2.15‡	2.15‡	2.10‡	2.60‡	2.60‡	2.15	2.15	.23d	.23d	12.50
St. Louis	3.27/3.48b	2.84/3.10b	3.05/3.22	2.90am	2.90am	2.30/2.70am	1.70f	1.70f	1.50	1.50	.215	.27ci	10.40
San Francisco	3.36	2.96	....	1.92	1.92	2.02	2.02	2.02	....	....	....	.22cl	10.70e
Seattle	3.75a	3.25a	4.50n	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24j	.3325j	11.40j

‡Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers' comm. not incl. *d* Dealers sell only LCL. *h* LCL.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ¼". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars.

CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5½ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash. *k* 8x8x18. *l* F.o.b. plant San Rafael. *m* F.o.b. yard.
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cu. brackets. *e* 2,000 lb. concr. *f* 2500 lb. comp. *g* Aver. haul 7–9 mi. zone. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.60†	Buffington, Ind	$2.55†	Steelton, Minn	$2.65†	Muskegon, Mich	$2.70†	Toledo, O	$2.60†
Clinchfield, Ga	2.60†	Independence, Kan	2.50†	Leeds, Ala	2.45†	Saginaw, Mich	2.60†	Milwaukee, Wis	2.75†
Kingsport, Tenn	2.60†	Hannibal, Mo	2.55†	Duluth, Minn	2.65†	Wyandotte, Mich	2.60†	Green Bay, Wis	2.75†
West Des Moines, Iowa	2.65†	Northampton, Pa	2.60†	Hudson, N. Y	2.60†	Buffalo, N. Y	2.60†	Ironton, O	2.60†
Nazareth, Pa	2.60†	Universal, Pa	2.65†	Alpena, Mich	2.50†	Oswego, N. Y	2.75†	Montreal City	2.61
Bath, Pa	2.60†	Waco, Tex. (+ 10¢ tax)	2.50†	Detroit, Mich	2.60†	Cleveland, O	2.60†	W. Winfield, Pa	2.65†

† *Prices to hold for third quarter of* 1952.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL Per gal.	ASPHALT EMULSION (Quick-breaking) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	$26.00	$33.25	$0.1975	$0.339	$0.095w	$0.185w	$0.105	$0.115	$0.225
Baltimore	150.00‡	58.00‡	—...	22.00	.....	.0809	0.15	.09w	.17w	.09i	.09	0.12
Birmingham	......	45.50i	.....	......	.....	.....	.....	......	......	......	......	......
Boston	......	......	.....	24.50a	35.50a	22.00av	35.50av	......	......	.09a	.105a	.22a
Chicago	155.00‡	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bv	29.25bv	.0875bw	.16[b]w	.075b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	55.00d	4.18g	23.00[A]	.....	23.00[A]	....	.1025[A]w	.19[A]w	....	.11[A]	.19[A]
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.0980	.1041	.2128
Denver	.....	48.00	.....	.....	....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	92.00	.....	26.82	....	26.82v	.....	.117w	.....	.0925	.....	.279r
Kansas City	e	e	e	18.55cl	...	.055	.....	.0725[c]w	.....	.0635c	0.435	.....
Los Angeles	e	.....	e	15.50dmx	...	15.50dvx	....	17.00dx	.....	16.00dv	.0825j	.1525j
Minneapolis	.....	.....	2.83h	23.90	....	22.895	.....	.0844w	.....	.0794	.0935	.....
Montreal	.....	e	e	27.10n	36.65n	.135n	.183n	16.30nu	18.80nu	.132n	.184ns	.225ns
New Orleans	.....	.....	.....	17.50e	....o	17.50ev	.....o	.085ew	.....o	.0825[B]	.085[B]	.....
New York	.....	.....	3.12f	26.26q	47.59q	25.26vt	46.58vt	.1071w	.2021w	.1071	.1072	.1993
Philadelphia	175.00	110.00	4.06	22.00	....	.....	.....	.095u	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	23.00	37.00	.10	.20	27.00	39.00	.095	.09	.205
St. Louis	.....	.....	.....	18.68f	....	.1698	.....	.0865/.089w	.....	0.15	.0975	.....
San Francisco	.....	55.00c	.....	17 00g	32.50gp	17.00gkv	22.50gkv	19.00g	36.50g	17.50v	.085y	.....
Seattle	.....	.....	.....	17.00h	37.50h	16.25hv	.....	19.50h	....	18.50hs	.095h	.105hr

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6# treat. *g* 3". *h* 8# treat. *i* 3 x 3⅝ x 8½.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* Bulk refinery. *j* F.o.b. refinery, Inglewood, Calif. *k* 50–110 penetr. *l* Less than 100 penetr. *m* 40–80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* 40–85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85–300 penetr. *u* Per 100 gal. *v* Per ton. *w* Per gal. *x* Also tank trucks. *y* F.o.b. Oakland. [A] F.o.b. refinery Cleveland. B. F.o.b. Norco, La.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT* SHAPES—	PLATE† CARBON STEEL	REINF† BARS billet	RIVETS† ¾-in. structural	SHEET† PILING Base	STEEL RAILS† Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES† Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area...	$3.91	$3.70	$3.70	$7.85	....	$72.00	$80.00	Not available	$4.70	$6.15	$4.50	....
Chicago Area......	3.91	3.70	3.70	7.85	$4.45	72.00	80.00		4.70	6.15	4.50	....
Pittsburgh Area....	3.91	3.70	3.70	7.85	4.45	72.00	80.00		4.70	6.15	4.50	$9.85
Buffalo Area.......	3.96	3.70	3.70	7.75	4.45	72.00	80.00	....	4.70	6.15	4.50	9.85
Cleveland..........	....	....	3.70	7.85	4.45	......	......	....	....	....	....	9.85
Youngstown Area.....	....	....	3.70	....	....	......	......	....	....	6.15	....	....
Geneva...........	3.91	3.70	....	....	....	......	......	....	....	....	....	....
Los Angeles........	....	....	4.40	....	....	......	......	....	....	6.15	....	....
Pueblo............	3.91	3.70	3.70	....	....	72.00	80.00	....	4.70	6.15	4.50	9.85

* Incl. 26¢ per 100 lbs., subj. to adj. † Subj. to adj. of new incr. not yet available.

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES* Per 100 lb. base price	REINFORCING BARS* Per 100 lb., base price u 5 tons to carload lot b New billet	Rail steel	Add switch	$/cwt for Del.	EXPANDED METAL LATHk Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCINGd Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta........	$7.01	$6.84	$6.84	$.025	$...	$36.00‡	$40.00‡	A.P.M.* Joliet, Illinois, Donora, Penn., $2.66 F.o.b. Mill: Monessen, Penn., $2.76	A.P.M.* Joliet, Illinois, Donora, Penn. $1.87 F.o.b. Mill: Monessen, Penn., $1.93	A.P.M.* Joliet, Illinois, Donora, Penn., $2.79 F.o.b. Mill: Monessen, Penn., $2.89
Baltimore......	6.15	5.49l	....	....	....	42.00	45.00			
Birmingham...	5.70	5.75	5.75	.05	.15	47.00p	52.00p			
Boston........	6.20a	6.19	6.19	....	....	39.50	43.50			
Chicago........	5.70	4.95ff	4.95ff	.0625	....	45.00C	50.00C			
Cincinnati.....	6.27ak	5.88r	....	....	.15	38.50szee	41.00szee			
Cleveland......	5.95	4.81v	....	....	....	37.00‡	40.00‡			
Dallas.........	8.85	7.00	7.00	....	....	49.00	52.00			
Denver........	7.35	7.25c	....	....	....	54.50s	65.00qs			
Detroit........	6.12	5.74n	....	....	.20	53.00	58.00			
Kansas City...	7.07nn Est	7.50# Est	....	....	....	41.00 Est	44.00 Est			
Los Angeles....	6.40fhh	6.21g	....	....	....	48.00	54.00kk			
Minneapolis....	6.15hh	7.12ll	7.12ll	....	....	37.00	39.50			
Montreal......	6.65iB/6.75A	4.75i	4.75g	....	....	44.10h	46.80h			
New Orleans...	....	5.55ok	....	.05	....	40.00	40.00			
New York.....	6.50r	6.25	6.25	....	.30	38.50st	45.00st			
Philadelphia...	6.10	6.15	....	....	....	38.00‡	42.00‡			
Pittsburgh.....	5.40/5.60	5.40/5.60	....	....	.10	34.00	36.00			
St. Louis......	6.02a	5.50c	5.50c	....	....	47.00aa	53.00aa			
San Francisco..	7.75ii	6.50l	....	....	....	40.50	43.50			
Seattle........	4.30e	5.55el	....	....	....	57.00smm	47.00smmx			

* At Producing Mill.

‡ Delivered. *b* 1–5 tons, add 35¢. Less than 1 ton, add 50¢. *c* 20 tons or over base. *d* Mill price plus freight. *e* F.o.b. plant. *f* Includes delivery in free delivery zone. *g* 10,000 to 39,999 lbs. *h* List price. Dominion tax exempt. Provincial and Municipal tax extra. *i* Plus Dominion, Provincial and Municipal sales tax. *j* Price per ton. *k* F.o.b. city. *l* Intermediate and hard grade, new billet. *m* Per sq.yd. *n* 5–10 tons. *o* 5 to 20 tons base. *p* Del. of 500 sq. yd. or more. *q* Std. ribbed. 4 lb. per sq. yd. *r* 5 tons or over. *s* LCL. *t* Asphalt coated. *u* Note: Revised size extra — 1 in., 1⅛ in., 1¼ in., 10¢, ⅞ in., ¾ in., 15¢, ⅝ in., 25¢, ½ in., 50¢, ⅜ in. 80¢, ¼ in. $1.90. *v* 20 tons. Straight. *w* Copper bearing. *x* 2.5 lb. per sq. yd. *y* $0.0093 transportation tax included. *z* Copper alloy. *aa* Delivered truck to job. Contractor to do unloading. *dd* F.o.b. dock. *ee* F.o.b. cars. *ff* Carload lots. *gg* Including sales. *hh* 10,000–19,999 lbs. *ii* 400–999 lbs. *kk* ⅜" ribbed. *ll* 5 to 8 tons, f.o.b. city. *mm* 2% off for cash. *nn* 1–5 tons. # 10 tons to CL. *a* 2000–9999 lbs. *A*. Amer. struct'l shapes. *B*. Canadian shapes. *C*. Deliv to contractor. * Subj. to adj. of new incr. not yet avail.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.*a*	ASBESTOS CEMENT PIPE per lin. ft.; f.ob. city 6" Pr Cl. 150	12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: * ASTMC 14-41 12 in.	24 in.
Atlanta.......	$101.00	$1.44	$2.42	....	......	....	....	......	......	......	....
Baltimore.....	109.00	1.46	2.42	.546	1.053	4.275A	11.3775A	178.20	274.80	.90	2.45
Birmingham...	93.00	1.44	2.42	.42	.75	2.99	....	210.00‡	375.00‡	1.25m	2.75m
Boston........	113.00	1.46	2.20	.553uvz	1.0665uvy	4.41uvy	11.90uvy	187.80v	289.20v	1.55mg	3.80mg
Chicago.......	107.00	1.44	2.20	.70m	1.35m	5.62m	13.50m	150.00‡	270.00‡	.80	2.80
Cincinnati.....	106.00	1.46	2.29	.567y	1.093y	4.32y	11.175y	164.40	254.10	.75m	2.80m
Cleveland.....	108.00	1.46	2.29	.49x	.945x	3.96x	10.66x	158.00m	245.65m	.75m	2.95m
Dallas........	112.00	1.46	2.54	.436	.822	3.234b	9.17b	......	......	.49	1.60
Denver........	115.00	1.55	2.54	.43dd	.74dd	3.18dd	....	......	......	.74m	2.50m
Detroit.......	108.00	1.46	2.29	.70	1.35	5.35	14.40	240.00m	360.00m	.80	3.20
Kansas City...	106.00	1.46	2.29	.515	.92	3.64	9.20	216.70	465.00	.70g	3.00g
Los Angeles....	124.00	1.53	2.29	.51f	1.07f	5.24f	13.06f	228.20f	348.90f	.85	2.40ff
Minneapolis*..	112.00	1.50	2.42	.66mo	1.20mo	4.85mo	....	......	......	1.36h	3.87h
Montreal......	115.00	....	....	.85z	1.50z	5.25z	....	......	......	1.17j	3.11j
New Orleans...	101.50	1.44	2.42	.513	.93	5.15	....	229.70bb	402.00bb	.65	2.29
New York.....	111.35	1.46	2.20	.64	1.21	4.86	12.71	......	......	1.15	2.50
Philadelphia...	110.00	1.44	2.20	.65	1.25	4.95A	12.65A	300.00‡	350.00‡	1.55h	3.75h
Pittsburgh.....	109.00	1.46	2.20	.406m	.772m	2.85m	7.652m	147.00	230.00	1.05h	2.50h
St. Louis......	103.00	1.46	2.29	.51	.93	3.65	8.58	180.00l	320.00l	1.20il	2.70hl
San Francisco..	122.00	1.55	2.29	.61d	1.20d	5.03d	12.57d	240.00l	400.00l	.95	3.20
Seattle........	124.00	1.55	2.42	.51b	.91b	....	....	150.00c	......	.86ee	2.56ee

***WROUGHT STEEL PIPE**

(Full standard weight)

Mill	2½ & 3 in., Butt Weld† Black %	Galv. %	3½ to 6 in., Lap Weld† Black %	Galv. %
Lorain, Ohio.......	43.5	25.0	....	....
Aliquippa, Pa.......	43.5	23.5	36.5a	16.5a
Sparrows Pt., Md..	41.5	23.0	33.5a	14.0a
Benwood, W. Va....	43.5	23.0	38.0c	17.0c
Youngstown, O.....	43.5	25.0	....	....
Indiana Harbor, Ind..	42.5	24.0	35.5a	16.5a
Sharon, Pa........	43.5	21.0	....	....
Wheatland, Pa......	43.5	23.5	38.5a	16.5a
Etna, Pa..........	43.5b	23.0b	38.0cb	17.0cb
Fontana, Calif......	32.0b	18.5b	24.0ab	10.0ab

† Threaded and coupled. *a* 3½ to 4 in. *b* Continuous weld. *c* 5 and 6 in.

‡ Delivered. *a* Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A. $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. *b* Extra strength ASTM C 200–44T. *c* 4-in., $90. *d* SS361-A. *e* 30-in. *f* F.o.b. factory. *g* Culvert pipe. Reinforced, ASTM C76–41. *h* Reinforced, ASTM C75–41. *i* Reinforced, ASTM C76–37. *j* Centrispun. No. standard specifications in Can. *l* F.o.b. plant. *m* Truck delivery. *o* Listed price is based on LCL (no minimum). *p* Less than 5 tons, per price per ft. *t* Within switching limits. *u* ASTM C13–40. *v* C.L.f.o.b. origin, freight allowed. *x* 2 ft. lengths. *y* 3 ft. lengths. *z* CESA A 60–1941 specifications used. *aa Extra strength ASTM C–200–50.* A standard strength. * 6" to 8", $1.67 per ft.; carlots, F.o.b. track Class 150. *bb* Freight allowed to destination in city. *cc* Truck loads; f.o.b. plant, Newton. *dd* LCL delivered, f.o.b. truck. *ee* 1% off for cash. *ff* 21.

* WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09, 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe. Discount for Pittsburgh base. *Butt Weld* — 1 in. black, + 20.0, galv. + 50.0; 1¼ in. black, + 20.0, galv. + 49.5, 1½ in. black, + 14.0 galv. + 46.0; *Lap Weld* — 2½ in. to 3½ in. black + 20.5, galv. + 48.5; 4½ in. to 8 in. black + 17.5, galv. + 44.0. Freight rates to destination to be added to name delivered price.

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

	SHORT LEAF YELLOW PINE AND DOUGLAS FIR. All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face) *All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft. (Prices in italics)*									LONG LEAF Y. P. Merchantable grade up to 20 ft.		PLYWOOD Rail freight increment (See note for base price)	
	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	2x12 Rgh	12x12 Rgh	5/8"	3/4"
Atlanta †	**$75.00**	**$78.00**	**$69.00**	**$71.00**	**$75.00**	**$78.00**	**$77.00**	......	......	......	......	**$22.32**	**$27.24**
Baltimore *	**89.00**	**91.00**	**78.00**	**78.00**	**80.00**	**85.00**	**110.00**	......	......	**$148.00**	**$148.00**	**25.92***	**31.60***
	108.00g	*108.00g*	*108.00g*	*108.00g*	*109.50g*	*109.50g*	*109.50*	*$119.50*	*$119.50*	......	......	......	......
Birmingham †	**83.50**	**83.50**	**70.50**	**80.50**	**83.50**	**85.50**	**95.50**	......	......	**115.50**	**155.50**	**21.78**	**26.58**
	86.50	*85.50*	*80.50*	*79.50*	*78.50*	*78.50*	*85.50*	*85.50*	*85.50*	......	......	......	......
Boston	**104/108ⁿa**	**108/112ⁿa**	**98/101ⁿa**	**99/106ⁿa**	**98/100ⁿa**	**98/100ⁿa**	......	......	......	......	......	**25.92***	**31.60***
2	*95.00*	*95.00*	*108/112*	*108/112*	*108/112*	*108/112*	*120.00*	*128.00*	*128.00*	......	......	......	......
Chicago **	**100.00**	**105.00**	**92.00**	**100.00**	**101/102**	**105/106**	**105.00**	......	......	**134.00**	**134.00**	**22.45***	**27.37***
	100/101	*101/103*	*104/105*	*108.00*	*108/110*	*108/110*	*110.00*	*110.00*	*110.00*	......	......	......	......
Cincinnati *	**99.00**	**105.00**	**88.00**	**98.00**	**105.00**	**110.00**	**122.50**	......	......	**145.00**	**145.00**	**25.00***	**30.48***
	115.00	*115.00*	*117.00*	*117.00*	*117.00*	*115.00*	*145.00*	*145.00*	*145.00*	......	......	......	......
Cleveland **	**96.00**	**99.00**	**86.00**	**92.00**	**97.00**	**99.00**	......	......	......	......	......	**25.37***	**30.93***
	......	......	*110.00*	*110.00*	*112.00*	*112.00*	*115.00*	*120.00*	*120.00*	......	......	......	......
Dallas k†	**78.00**	**80.00**	**69.00**	**58.00**	**59.00**	**59.00**	**98.00**	......	......	**108.00**	**98.00**	18.72	22.80
Denver *	*Not in stock*		*133.00*	*132.00*	*131.00*	*130.00*	*143.00*	*158.00*	*158.00*	......	......	13.92	16.98
Detroit ‡	**108.00**	**112.00**	**102.00**	**110.00**	**114.00**	**115.00**	......	......	......	......	......	**25.00***	**30.48***
	101.50	*102.50*	*111.50*	*112.25*	*111.25*	*110.00*	*118.75*	*122.50*	*122.50*	......	......	......	......
Kansas City *	**122.00**	**122.00**	**122.00**	**122.00**	**122.00**	**122.00**	......	......	......	......	......	**16.56**	**20.16**
	122.00	*122.00*	*122.00*	*122.00*	*122.00*	*122.00*	*147.50*	*157.50*	*157.50*	......	......	......	......
Los Angeles ¹	*96.00*	*96.00*	*96.00*	*96.00*	*96.00*	*96.00*	*114.00*	*124.00*	*114.00*	......	......	16.61**ab*	20.25**ab*
Minneapolis #	*130.00*	*130.00*	*135.00*	*135.00*	*135.00*	*135.00*	*150.00*	*150.00*	*150.00*	......	......	19.89*	24.25*
Montreal	*ab*85.00	90.00	85.00	85.00	90.00	100.00	......	......	......	......	......	......	......
	175.00	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*170.00*	......	......	......	......
New Orleans †	**100.00**	**100.00**	**92.50**	**85.00**	**90.00**	**94.00**	**118.00**	......	......	**148.00**	**140.00**	18.72	22.80
†	*90.00*	*100.00*	*103.25*	*99.25*	*97.50*	*97.50*	*120.00*	*122.50*	*120.00*	......	......	......	......
New York ³	**105/109**	**109/113**	**105/110**	**112⁵⁰/117⁵⁰**	**115/120**	**120/125**	**150/160**	......	......	**210/240**	**210/240**	25.92*	31.60*
	......	......	*Range from $120.00 to $125.00*				*135/150*	*149/155*	*149/155*	......	......	......	......
New York **	**95.00**	**98.00**	**82.00**	**93.00**	**96.00**	**100.00**	**120.00**	......	......	**190.00**	**190.00**	....	....
	98.00	*98.00*	*110.00*	*109.00*	*109.00*	*110.00*	*115.00*	*125.00*	*125.00*	......	......	......	......
Philadelphia			**Range from $114.00 to $127.00**				**114/127**	......	......	**200/210**	**200/210**	25.92*	31.60*
			Range from $125.00 to $150.00				*130/140*	*150.00*	*150.00*	......	......	......	......
Pittsburgh †			**Range from $90.00 to $95.00**			**110/120**	**110/120**	......	......	**100/120**	**115/125**	**25.92***	**31.60***
			Range from $110.00 to $120.00			*110/120*	*110/120*	*140/155*	*145/155*	......	......	......	......
St. Louis #	*c***110.00***e*	**113.00***e*	**95.00***d*	**106.00***e*	**111.00***e*	**116.00***e*	......	......	......	......	......	18.72	22.80*l*
	......	......	*116.00ⁱ*	*122.00e*	*122.00e*	*122.00e*	*200.00e*	*200.00*	*200.00*	......	......	......	......
San Francisco A†	*68.00*	*70.00*	*79.00*	*76.00*	*75.00*	*73.00*	*80.00*	*81.00*	*82.00*	......	......	12.22**a*	14.91**a*
Seattle †	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	......	......	......	......

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common. *l* 8–10 ft. lengths. *n* ⅓ #1, ⅓ #2 & ⅓ #3.

A*Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Plyform grade Fir Plywood, 4′ by 8′ panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ⅝", $176.00; on ¾", $201.00. Exterior plyform ⅝" $196.00, ¾" $223.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum.

* Incl. new freight rates. Rates for other cities not avail. as we go to press.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS: Discounts from jobbers list, Feb. 1, 1950*a* Single or Double Thickness		EXPLOSIVES: Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
	A quality	B quality	
Atlanta	79%	80%	$0.2315
Baltimore	76%*d*	78%*d*	.2315
Birmingham	83%	83%	.1790
Boston	79–10%	79–10%	.2315
Chicago	78%	78%	.2315
Cincinnati	78%	78%	.2315
Cleveland	78–10–10%	78–10–10%	.2715
Dallas	75%	75%	.2390
Denver	81–5%	81–5%	.2365
Detroit	78–10–10%	78–10–10%	.2315
Kansas City	80–10%	80–10%	.2365
Los Angeles	75%	80%	.2340
Minneapolis	78–10%	78–10%	.2365
Montreal	40–5%*bc*	40–10–5%*b*	21.60*hi*
New Orleans	78%	77%	.2365
New York	82–10%	82–10%	.3975*g*
Philadelphia	78%	82%	.2315
Pittsburgh	82%	82%	.2040
St. Louis	80–10%	80–10%	.2365
San Francisco	70%	70%	.2315
Seattle	75%	78%	.2340

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass; *a* Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *d* Discount 6/15/52.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40% Forcite 60%, $23.35. *i* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.179	$0.2115	$0.2315
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.184 – .1915	.2165–.224	.2365–.244
Rocky Mtn. States	.184 – .1965	.2165–.224	.2365–.249
Pacific N. W. States	.1815–.194	.214 – .2265	.234 – .2465
Pacific S. W. States	.179 – .1865	.2115–.214	.2315–.2365

PILES, TIES F.O.B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

			By Rail	
Dimensions	Points	Length	Pine*	Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in.—2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in.—2-ft. from butt	6-in.	60 to 69-ft.	.58	..
12-in.—2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.—3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.—2-ft. from butt	6-in.	50 to 69-ft.	.50/.68	....
14-in.—2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in.—2-ft. from butt	5-in.	80 to 85-ft.	.83/.93	.94
14-in.—2-ft. from butt	5-in.	85 to 89-ft.	....	1.00
14-in.—2-ft. from butt	5-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8′		7"x9"x8′6"	
		Untr.	Tr.	Untr.	Tr.
Boston	Oak *i*	....	...	....	...
	Pine *i*	....	....	....	....
New York	S. L. Sap Pine	$2.55	$4.35	$3.45	$5.45
	Mixed Oak	3.10	4.65	3.70	5.95
Birmingham	Hardwood	2.40	3.88*a*	2.85	4.58*a*
Chicago	Red Oak	...	4.00*a*	....	5.00*a*
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.60	3.95	3.45	5.10
St. Louis	White Oak	3.04	...	3.85	....
	Red Oak	2.94	3.60*a*	3.67	4.68*a*
	Sap Pine or Cypress	3.41*a*	....	4.44	....
San Francisco	Douglas Fir	2.20*e*	3.25*ef*	2.92*bf*	4.30*eaf*
Montreal	Birch or Maple	....*h*	...*h*	....*h*	....*h*

Tr.—Treated; Untr.—Untreated. *a* Creosoted. *b* 7" x 9" x 8′. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$6.00
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2.20
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.95

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.50	$247.50	$327.00	$342.00	$381.50	$27.38	$27.38	$19.00	$17.50	$17.50
Baltimore	183.00	195.00	366.00	415.00	541.00	618.00	36.00k	41.00k	30.00	21.00	....
Birmingham	118.00p	128.00p	236.00p	283.00p	......	......	23.50ff	28.00gg	26.37	17.10	.
Boston	196.00†	209.00†	392.00†	383.25†	......	......	34.50p	37.50p	30.00†	28.00†	.
Chicago	135.00	145.00	280.00	......	......	......	23.00	25.00	30.80	26.00	....
Cincinnati	185.00j	195.00j	340.00jdd	......	......	......	34.50j	46.00j	26.37j	24.62j	.....
Cleveland	172.00**	183.00**	......	......	......	......	32.00	32.00	25.50	23.50	31.00ee
Dallas	......	118.00	.....	......	....	....	19.75	35.25	32.00	21.80	.....
Denver	......	......	......	......	......	......	34.00	40.00	34.80bb	28.00bb	34.00bb
Detroit	127.75	136.25	255.55	......	317.25	362.60	34.90cc	33.30cc	32.00	30.00	.....
Kansas City	115.50	122.50	245.00	245.00	303.50	367.00	26.00	26.00	30.50	24.50	27.00
Los Angeles	r	r	r	r	r	r	24.50§	.....	34.24	34.24	35.24
Minneapolis	171.50p	192.50p	386.00p	192.50wn	......	......	32.00vn	36.00	37.00bbe	28.00bbe	38.00bbde
Montreal	150.00aq	162.50au	300.00au	......	......	......	31.00	41.50	34.80	32.50	24.60u
New Orleans	170.00	170.00	310.00	380.00	......	......	31.00	.....	.....	28.00	28.00
New York	138.70h	147.90h	203.40ch	221.90hn	......	......	35.00	.....	36.00	32.00	..
Philadelphia	126.30	134.80	252.60	302.74	361.35	......	32.00	42.00	25.00	23.00	2.97
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	36.00	46.00y	25.00	23.00	2.97m
St. Louis	138.00cc	158.50cc	313.00cc	......	351.00cc	......	40.00sl	36.00s	.85saa	.65saa	1.10aaspee
San Francisco	156.85a*	177.10a*	235.30dda*	......	......	......	37.00	.....	26.60	26.60	2.65m
Seattle	175.00cc	190.00cc	......	190.00ccw	......	......	39.00s	49.00s	37.50shh	1.45#	3.90mhh

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount. *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. yard. # Per 60 lb. sack, no incr., ton price no longer quoted. ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases in oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$19.00	$30.125	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	18.75	29.75	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	19.00	30.125	3.90	3.40	....	2.80	2.75	2.75	....	40.50ee
Boston	18.75	29.75	....	...	....	2.67gg	2.79og	2.79og	.42g	42.00g
Chicago	18.75	29.75	....	...	....	2.73‡u	3.04‡o	3.04‡o	38.00‡bbr	43.00‡
Cincinnati	18.75	29.75	...	....	....	2.50	2.50	2.50	.42y	42.36
Cleveland	18.75	29.75	2.65pggA	2.95ggB	2.50ggC	2.50q	2.50o	2.50o	.39y	43.20hh
Dallas	19.00	30.50	....	4.05	....	3.50q	3.75o	4.35o	.36	46.00
Denver	19.25	30.25	3.07	5.15	2.87	3.25o	2.40o	2.40o	.43ff	42.00
Detroit	18.75	29.75	2.35	3.40	2.50	2.50	2.30f	2.30	.51	40.00
Kansas City	18.75	29.87	....	2.71ys	2.65	2.50	2.50o	2.50o	.313s	48.00
Los Angeles	18.75	30.00	3.30s	4.50s	4.20s	2.97s	2.01es	l	.44s	l
Minneapolis	18.75	28.95/29.87	....	...	....	2.40idd	2.50hidd	2.50hidd	.36idd	37.00r
Montreal	.....	20.70	2.95Dff	4.05Eff	3.35Fff	4.82t	3.65tf	3.65tf	1.24kt	3.78kt
New York	18.75	29.75	....	....	....	2.50	2.50o	2.50o	.36z	37.00*
Philadelphia	18.75	29.75	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	18.75	29.75	2.65	2.65	3.15	2.50	2.87o	2.87o	.40	42.00
St. Louis	18.75	29.75	....	....	....	2.50	2.50h	2.50h	.33y	38.00
San Francisco	18.75	30.00	2.40	....	3.40	2.95	4.00aa	....	.49	...
Seattle	18.75	30.25	2.96m	2.80m	....	3.58mqcc	3.05hmcc	....	.59mcc	52.00jmc

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll, 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* F.o.b. city. *o* Per 60-lb. *p* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bc* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ec* Asphalt. in 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory. *hh* Incl. freight. *A*. TTP 27. *B*. TTA 468A. *C*. TTP 31A. *D*. Std Black. *E* Ready-mixed, *F*. Over 80% ferric oxide. * Aver. wt. approx. 500 lbs.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.75	$2.20	$2.60	$2.25	$2.75	$2.60	$2.75	$1.05	$1.05
Baltimore	3.20r	2.58	3.125t	2.85/3.00	2.75	2.75	2.80	1.565t	1.565t
Birmingham	2.75	2.24	2.50	2.16	2.52	2.75	2.65	1.225	1.325
Boston	3.06a	2.625	2.82	3.00	3.05	2.80	2.90d	1.99a	1.99a
Chicago	3.25k	2.95	2.85w	2.80	3.43y	3.212f	3.09e	2.20m	2.20m
Cincinnati	3.12	2.625	2.815	1.825/2.85	2.90	2.90	2.90	1.92	1.92
Cleveland	3.12	3.075#	3.075	3.00	3.075	3.075	3.00	2.325	2.325
Dallas	3.4375	2.4875	2.625	2.50	3.437	2.75	2.7625	1.325	1.35
Denver	3.00w	2.35w	2.50	2.48w	3.30w	2.90	2.82	1.575	1.575
Detroit	3.08	2.83	3.08m	2.90	3.20l	3.05	2.90m	2.08	2.08
Kansas City	3.50	2.55z	2.68	2.365/2.61z	3.175	2.70	2.75	1.88z	1.88z
Los Angeles	3.175	2.57	2.70	2.44	3.125w	2.75	2.625w	1.94	1.94
Minneapolis	2.90	2.40	2.57	2.35	2.75	2.71n	2.70	1.67	1.67
New Orleans	2.85	2.22	2.60	2.50	2.525	2.65	2.675	1.225	1.225
New York	3.85br	3.24bo	3.50o	3.50o	3.95A	3.75as	3.445bp	2.05	2.05
Philadelphia	3.46i	2.90	3.32j	1.55/2.90vw	3.325k	3.298u	3.29v	1.75	2.05
Pittsburgh	3.25	2.75	2.75	2.825	2.75	2.75	2.80	1.90	1.90
St. Louis	3.55c	2.90h	2.90	2.97z	3.00	2.887c	2.75	1.97z	1.97z
San Francisco	3.25b	2.60z	2.75z	2.56	3.125a	3.00	2.75	1.85	1.85
Seattle	3.30	2.58	2.78	2.71	3.15	2.80	2.75	2.18	2.14
Montreal*†	1.90	1.70	1.80	1.60	1.90	1.80	1.85	1.20	1.20

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund for bricklayers; 4% for electricans plus 1% N.P. *d* Incl. 10¢ H. & W. F. *e* Incl. 6¢ H. & W. F. *f* Incl. 6% W. F. *g* Incl. 11½¢ W. F.. * Cost of living bonus now included in basic wage. # Includes 5¢ per hr. tool replacement. *h* $2.45 homes and housing + 5¢ vacation fund. *i* Incl. 3½% welfare. *j* Incl. 9¢/hr. welfare. *k* Incl. 7½¢/hr. welfare fund. *l* Incl. 4% vacation fund. *m* Incl. 5¢/hr. welfare ins. fund. *n* Incl. 6¢/hr. welfare fund. *o* Incl. 3% welfare fund. *p* Incl. 5% welfare fund and 3% pension fund. *r* Incl. 3% welfare fund and 20¢ pension fund. *s* Incl. 5% welfare and pension fund and 4% vacation fund. *t* Incl. 7½¢ W. & H. F. *u* Incl. 1½% welfare fund. *v* Incl. 10¢ welfare fund. *w* Negotiating. *z* Await WSB appr *y* Incl. 8% W. F. *A* Incl. 10¢ W. F., 10¢ P. F. & 10¢ Vac. F. † Plus 2% vacation pay.

MEXICO CITY PRICES

In Pesos, F.o.b. City		June'52	July'52
Common Wages—Building (8 hr. day)	av. per hr.	.83*	.83*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	.93*	.93*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	2.25*	2.25*
Bricklayers (8 hr. day)	av. per hr.	2.25*	2.25*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.50*	1.50*
Struct. Steel Shapes			
3"–15" x 12 meters	per metric ton	1,193.63	1193.63
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1,356.17	1356.17
½" x 11 meters	per ton	1,344.96	1344.96
⅝" x 11 meters	per ton	1,333.75	1333.75
¾" x 11 meters	per ton	1,322.54	1322.54
⅞" x 11 meters	per ton	1,322.54	1322.54
1" x 11 meters	per ton	1,322.54	1322.54
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	55.00	55.00
Rose Gravel	per tr. load	45.00	45.00
Cement, Std. Port. (Tolteca)	per ton	160.00	160.00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	800.00	850.00
1st Class Pine	per M ft.	1200.00	1400.00
2nd Class Pine	per M ft.	980.00	1100.00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers): $2.885 **ENR Common Average:** $1.793.

OFFICIAL PROPOSALS

Bids: August 14, 1952

Soil explorations and foundation investigations at various sites on the New England thruway, post road to Larchmont, towns of New Rochelle and Larchmont, city of New Rochelle, Westchester county, which constitutes contract No. Spec. SM-40.

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Daylight Saving Time, on August 14, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

Maps, plans and specifications may be examined and obtained at following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.
(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $16,440.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $822.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Superintendent of Public Works

Bids: August 14, 1952

Delaware Memorial Bridge

DELAWARE MEMORIAL BRIDGE
NOTICE TO BIDDERS
CONTRACT NO. 24
RIGHT OF WAY FENCE

Sealed proposals for construction of right of way fence along the approaches to the Delaware Memorial Bridge, will be received by the Delaware State Highway Department at the office of the Director, Delaware Crossing Division, Administration Building, Delaware Memorial Bridge, Delaware, until 11 o'clock Eastern Standard Time, (12 o'clock Eastern Daylight Saving Time), August 14, 1952, at which time and place said proposals will be publicly opened and read.

The work involves the following approximate principal quantities:—

Corner and Pull Posts	60
End Posts	17
Line Posts	1475
Farm-Field Fence	24700 lin. ft.
Relocating Chain-Link Fence	570 lin. ft.

Performance of this Contract shall begin promptly after execution of the Contract and shall be completed on or before December 1, 1952.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the Department.

Each proposal must be accompanied by an acceptable surety bond or certified check to the amount of at least ten (10) per cent of the total amount of the proposal.

The Contract will be awarded or proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all bids.

One set of the Plans and two copies of the Specifications may be obtained from the Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y., after July 24, 1952, upon payment of $10.00.

Any prospective bidder who has made such a deposit may secure extra blueprint copies of the Plans upon payment of 50 cents per drawing and an extra copy of the Specifications upon payment of $2.50 per copy.

Plans and Specifications need not be returned to the Engineers, and the above payments will not be refunded.

The Plans and Specifications and other contract documents may be examined at the office of the Engineer, Howard, Needles, Tammen & Bergendoff, or at the Engineers' project office located north of and adjacent to the west abutment of the Delaware Memorial Bridge in the State of Delaware.

State Highway Department
by: J. Gordon Smith, Chairman
W. A. McWilliams, Director
Delaware Crossing Division
July 24, 1952

Bids: November 5, 1952

Auckland Metropolitan Drainage Board

SEWERS AND OTHER WORKS IN TUNNEL

TENDERS are invited, from firms having suitable experience, for construction of a main sewer 6 ft 9 in. horseshoe section in tunnel, length about 17,000 feet; a main sewer, partly 5 ft 6 in. by 3 ft. 0 in. in tunnel, length about 15,000 feet; an access roadway about 3,000 feet long, including tunnel section about 1100 feet; and incidental works.

Tender drawings and documents will be available August 6th. Copies will be forwarded (by air mail to overseas firms) on application, accompanied by cheque or bankers order payable in Auckland amounting to £15 N.Z. for each set of documents required. Deposits will be refunded on receipt of bona fide tender or on return of documents. Deposit required with tender £7,500 N.Z. and will be refunded to unsuccessful tenderers.

Tenders close at Board's Offices, P.O. Box 208, Auckland, New Zealand, at Noon, N.Z. time, on 5th November, 1952.

Bids: September 3, 1952

Delaware River Joint Toll Bridge Commission

526 Broad Street Bank Building
Trenton 8, New Jersey
NOTICE TO CONTRACTORS

Sealed proposals for the construction of the eastern approaches for three bridges over the Delaware River, between Pennsylvania and new Jersey will be received by the Delaware River Joint Toll Bridge Commission at its office, 526 Broad Street Bank Building, Trenton 8, New Jersey, until eleven o'clock (11:00) A.M., E.D.S.T., on the 3rd day of September 1952, at which time and place all bids will be publicly opened and read aloud.

After July 28, 1952, Instructions to Bidders, form of Proposal, form of Contract, form of Performance Bond, Plans and Specifications may be examined at the office of the Commission, above address, and copies thereof obtained upon payment of $10.00 for each set, which amount is not returnable.

The names, location and approximate quantities of major items for the three approaches are as follows:

NEW JERSEY APPROACHES

Contract No. 105—Delaware Water Gap Bridge	
Earthwork	112,000 c.y:
Pipe Drains (6-in. to 30-in.)	6,200 l.f.
Inlets	31 units
Concrete	1,700 c.y.
Concrete Pavements	15,000 s.y.
Contract No. 205—Portland-Columbia Bridge	
Earthwork	166,000 c.y:
Pipe Drains (6-in. to 72-in.)	14,000 l.f.
Inlets and Manholes	61 units
Concrete	17,000 c.y.
Concrete Pavements	25,000 s.y.
Concrete Curb	11,000 l.f.
Topsoil, Seeding and Mulching	50,000 s.y:
Contract No. 305—Milford-Montague Bridge	
Earthwork	30,000 c.y:
Pipe Drains (6-in. to 48-in.)	1,600 l.f.
Stabilized Shoulders	6,000 s.y.
Bituminous Macadam Pavements	8,000 s.y.
Topsoil, Seeding and Mulching	15,000 s.y:

Proposals may be submitted for any one approach; for any two approaches, or for all three approaches.

Each Proposal must be accompanied by a certified check in the amount of not less than five (5) per cent of the amount of the Proposal. If the bidder submits Proposals for more than one contract, a single certified check in the amount of not less than five (5) per cent of the largest amount of work included in a Proposal will be sufficient.

All checks shall be made payable to the Delaware River Joint Toll Bridge Commission, which amounts shall be forfeited as liquidated damages if the bidder or bidders fail, within ten (10) consecutive calendar days after written notice that the bidder or bidders have been awarded the contract, to enter into a written contract with the Commission in accordance with the accepted bid, and to give a Performance Bond satisfactory to the Commission, equal to one-hundred per cent (100%) of total amount of contract.

The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work, and to the bidder whose proposal is deemed by the Commission to be most advantageous to the public interest.

DELAWARE RIVER JOINT TOLL
BRIDGE COMMISSION
Alexander R. Miller, Chairman
July 28, 1952

Bids: August 14, 1952

Soil Explorations and Foundation Investigations at Various Sites on the New York State Thruway, Hudson Section Subdivision 7, Suffern to Harriman, City of Suffern and Township of Ramapo, Rockland County, Which Constitutes Contract No Spec. SM-39.

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Daylight Saving Time, on August 14, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

Maps, plans and specifications may be examined and obtained at following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.
(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $29,725.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,487.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Superintendent of Public Works

U. S. Government

St. Paul District, Corps of Engineers, US Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota—Sealed bids will be received at this office until 2:00 P.M., C.S.T., 14 August 1952, and then publicly opened, for Installation of Cut-off Wall at Control Structure and Repair of Embankment, Prairie Island Dike, Mississippi River, Winona, Minnesota. Information on request.

OFFICIAL PROPOSALS

Construction of an Underpass

Sealed proposals will be received by the West Virginia Turnpike Commission for:

CONTRACT NO. 8

The work to be done under this Contract consists in performing the required grading and drainage for approximately 1.8 miles of turnpike including the relocation of approximately 1.6 miles of side roads, plus the construction of an underpass substructure known as Structure 8B. This work is located near Camp Creek, Mercer County, West Virginia, and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

The principal items of work include:

	Approximate Quantity
Clearing and Grubbing	40 Acres
Excavation (all types)	240,000 C. Y.
Embankment	205,000 C. Y.
Concrete	900 C. Y.
Reinforcing Steel	41,300 Lbs.
Culvert Pipes and Underdrains	8,400 L. F.

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia, until 9:00 A.M., Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia, until 10:00 A.M., Eastern Standard Time, on August 19, 1952, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen and may be inspected by prospective bidders during office hours, after July 31, 1952, at the office of Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia, and at the office of the Engineers, Capitol Engineering Corp., Dillsburg, Pennsylvania, and at 106 North 5th Street, Princeton, West Virginia.

Contract plans and specifications will be furnished for Fifteen Dollars ($15.00) for each set, which is not refundable, upon application to Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia. Mailing address: P.O. Box 5266, Capitol Station, Charleston, West Virginia. Cross sections are bound separately and will be furnished for Fifteen Dollars ($15.00) for each set. Make checks payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be made upon the proposal forms furnished by the Commission in the manner designated in the Specifications, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a cashier's or certified check drawn to the order of the West Virginia Turnpike Commission, for not less than five (5) percent of the amount of the proposal, but not less than $500.00 nor more than $200,000.00 and must be delivered at the place designated above on or before the day and hour named. Copies of the proposal form to be used for submitting proposals, and of the special addressed envelope are furnished in detached form with the contract documents.

The Contract will be awarded or the proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all proposals, and to waive any or all formalities.

WEST VIRGINIA TURNPIKE
COMMISSION
D. Holmes Morton, Chairman

Bids: August 19, 1952

CONTRACT 645

CONCRETE SUBSTRUCTURES AND PIPE LINES FOR THE WESTCHESTER COUNTY, N. Y.—SANITARY SEWER DISTRICT OF NEW ROCHELLE SEWAGE TREATMENT PLANT

Sealed bids or proposals will be received in Room 508, County Office Building, White Plains, New York, until 10:00 A.M., Eastern Daylight Saving Time, August 19, 1952, immediately after which the bids received will be publicly opened and read aloud in Room 808 of the Said Building.

The work will include the following principal bid items:

20,500 cu. yds. Unclassified Excavation in Structures and Grading of Site.
380 lin. ft. Submarine Inverted Pipe Siphons.
9,600 cu. yds. Concrete A.
2,000 cu. yds. Concrete B.
670 tons of Reinforcing Steel.

Miscellaneous items: Detritor and Grit Washing Equipment, Comminutors, Sluice Gates, Gate Valves, Rock Embankment Wall for Harbor Protection, Fence, and other Miscellaneous Minor Items.

The Contract Documents may be seen at Room 508, County Office Building, White Plains, New York, where plans, specifications and standard proposals for the work proposed may be procured upon a cash deposit of $40.00, which deposit will be refunded to bidders only, provided plans and specifications are returned in good condition within thirty (30) days after the award of the contract or rejection of bids.

Extra sets of plans or copies of individual sheets may be obtained at the cost to the County. For extra sets of plans or to non-bidders, no refund will be made.

All bids must be accompanied by a certified check of $100,000. payable to the County of Westchester, N. Y.

The County reserves the right to waive any informalities in the bids, or to reject any and all bids. No bidder may withdraw his bid within forty-five (45) days after the actual date of the opening thereof.

COUNTY OF WESTCHESTER
Department of Public Works
By: James C. Harding
Commissioner

U. S. Government

Kendrick Project, Wyoming
Design Branch
Casper, Wyoming
Bureau of Reclamation
North Platte River District 72552-P1
Casper, Wyoming

For immediate release
July 25, 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 703C-271 for furnishing labor and materials and performing all work for the construction of Laramie substation additions, Kendrick Project, Wyoming, will be mailed to P. O. Box 280, Casper, Wyoming, or delivered to the office of the Bureau of Reclamation in time for the public opening at 10:30 a.m., Mountain Standard Time, August 19, 1952, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming.

Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the specifications and drawings furnished for bidding purposes; for all other $3.00 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

OFFICIAL PROPOSALS

RATE: **The rate for official proposal advertising is $1.00 per line (or fraction) per insertion.**

COPY RECEIVED: **Up to 3:00 P.M. Friday for issue out following Thursday subject to space open for last minute ads.**

SEND COPY: **To Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.**

SEARCHLIGHT SECTION

This index is published as a convenience to the reader. Every care is taken to make it accurate but Searchlight Section assumes no responsibility for errors or omissions.

Aberthaw Co The 90, 91
Acchione Contracting Co 90
Air Compressor & Pump Corp 89
Albert Pipe Supply Co Inc 92
Amerlux Steel Products Corp 92
Atlantic Tug & Equipment Co Inc 90

Baker Co Michael 85
Bauer L W 89
Bixby Inc R W 86
Bucks County Construction Co 88
Builders Steel Supply Co 92

Chemical Co 91
Chemico Co 92
Clark-Wilcox Co 91
Clemens Construction Co 91
Colonial Tractor Co Inc 91
Commercial Metals Co 92
Concrete Equipment Co 90
Contractors Machinery Co 88
Cuyahoga Wrecking Co 90

Davidson Pipe Co Inc 92
Deatherage & Son George E 86
Dick Construction Co 89
Drachman Steel Corp Hy 91

Electric Equipment Co 91
Evans & Edell 87

Fabick Tractor Co Inc 88
Forke Brothers 87
Foster Co L B 92
Frank M K 92
Frantz Equipment Co 87

Gelb & Sons Inc R 88
General Sand & Stone Corp 90
Gibson Engineering Co 90
Goodman Al J 92
Great Lakes Wholesale Supply Co 90
Groves Sons S J 88, 91
Gurley W & L E 87

Harza Engineering Co 85
Hodge & Hammond Inc 90
Hunkin-Conkey Construction Co The 87

Industrial Machinery & Supply Co 91

Jafra Inc 90
Judge & Co Inc Frank M 88

Kalill Co. 92
Kyle L B 87

La Electricdad de Caracas 85
List & Weatherly Construction Co 90

Mackler & Co John 90
McCarrick Brothers Inc 89
Magee Estate, Walter 88
Mahoney-Clarke Inc 89
Mertes Machinery Co 90
Metalweld Inc. 89
Midwest Steel Corp 92
Mississippi Valley Equipment Co 92

O'Neill A J 91

Phillips Petroleum Co 82
Pneumatic Electric Equipment Co 91

Sallisaw Stripping Co 90
Sanderson & Porter 90
Shannon & Co J Jacob 89
Sherman Transfer Co Roger 89
Stanhope Inc R C 92
Summit Construction Co 87

Tagco Inc 92
Tinari & McNamara 90
Toledo Testing Laboratory 82
Tractor & Equipment Co 92

United Tractor & Equipment Corp 88

Vilbro Equipment Co Inc 90
Visionfine Co The 87

Wall Stadium 92
Warfield, Co, The 91
Weil & Co J H 87
West Penn Power 90
Wilson Engineering Corp 86

OFFICIAL PROPOSALS

Bids: August 21, 1952

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Thursday, August 21, 1952 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1 G. L. Nickerson, Dist. Engr., 353 Broadway, Albany, N. Y.						
Greene	SH52-6	Catskill Village: Allen Street (Connect. S.H.5685 & S.H.1934)	0.17	Asp. Conc. Ty. 1-A, Opt.	$6,000 Plans $10	$107,000
DISTRICT No. 3 Wm. Robinson, Dist. Engr., 301 E. Water Street, Syracuse, N. Y.						
Onondaga	FARC52-68	Marietta-Marcellus, S. H.971 Skaneateles-Lafayette, Pts. 2&3 S.H.8360-8373 Proj. F470(15) (Cont. No. 2)	11.21	Asp. Conc. Ty. 1-A Opt.	$60,000 Plans $25	$1,131,000
DISTRICT No. 4 J P. Larsen, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.						
Monroe	FAC52-12	Rochester City: Innerloop (Front St.-Main St. West) Proj. U1089(3)	0.47	Asp. Conc. Ty. 2-A Hy. Sep. Built-up Beam 100.6′ Sp.	$70,000 Plans $25	$1,295,000
DISTRICT No. 5 C. R. Waters, Dist. Engr., 65 Court Street, Buffalo, N. Y.						
Erie	FARC52-83	Transit Road, Pt. 4, S.H.1334B Proj. F651(6)	0.69	Asp. Conc. Ty. 2-A=0.68 mi. Misc. Work=0.01 mi. 30′ Conc. Slab	$15,000 Plans $10	$270,000
Niagara	FAC52-11	City of Lockport: Walnut Street Arterial Rte. Proj. U709(3)	0.52	Asp. Conc. Opt. =0.51 mi. Misc. Work =0.01 mi.	$15,000 Plans $10	$286,000
DISTRICT No. 7 C. C. Cassel, Dist. Engr., 444 VanDuzee Street, Watertown, N. Y.						
Clinton	FARC52-84	Plattsburg-Ausable Chasm, Pt. 1, S.H. 5191 Proj. F489(6)	6.89	Asp. Conc. Ty. 1-A, Opt.	$22,000 Plans $10	$397,000
DISTRICT No. 8 J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.						
Westchester	TSP52-3	Taconic State Parkway		Traffic Control Signal	$350 Plans $10	$6,000
DISTRICT No. 10 J. J. Darcy, Dist. Engr., Little E. Neck Rd. & Montauk Hy., Babylon, L. I., N. Y.						
Nassau	FA NE52-1	Nassau Expressway (Seagirt Blvd. Interchange) (Cont. 2) Proj. U1098(2)	1.03	Asp. Conc. Ty. 1-A, Opt.=1.02 mi. Misc. Work=0.01 mi. 2 Sp. Steel Beam Bridge 53′ Each with 2 Reinf. Conc. Approach Spans	$30,000 Plans $15	$544,000
Suffolk	SMSP52-2 RC52-85	Sunken Meadow Spur Parkway (Cont. 3) Jericho Turnpike, Pt. 3, SH5112	1.17	Grading=0.30 mi. Asp. Conc. Ty. 1-A, Opt.=0.87 mi. 3 Hy. Seps. Rigid Frames 126.33′; 66.5′ & 66.67′	$55,000 Plans $25	997,000
Suffolk	FASH52-12 FARC 52-82	Sunrise Highway Extension, Pt. 8 (Great River-Broadway Ave.) Sunrise Highway Extension Pt. 6, S.H. .8460 Bayshore-Brookhaven Town Line S.H. 5301 Proj. Nos. U947(8) & U636(20)	5.32	9″ Cem. Conc. Pavt. 2 at 25′=5.30 mi. Misc. Work=0.02 mi.	$130,000 Plans $25	$2,348,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: August 18, 1952

Oil Refinery Near Baghdad

GOVERNMENT OF IRAQ

The GOVERNMENT REFINERY BOARD invites tenders from established firms of civil engineering contractors for the CONSTRUCTION of the FOUNDATIONS, CONCRETE STRUCTURES and OTHER CIVIL ENGINEERING WORKS for the GOVERNMENT OIL REFINERY NEAR BAGHDAD.

Firms desirous of tendering shall first pay a charge of Iraqi Dinars 15 or the equivalent in pounds Sterling and also make a deposit of I.D.'s 5,000 or the equivalent in pounds Sterling at the Rafidain Bank, Baghdad, or at the Midland Bank, Overseas Branch, 122 Old Broad Street, London, E.C.2. The Contract Documents and Drawings will be available to Tenderers, on production of receipts for the above amounts, on or after 18th August 1952 from either the Director General, Government Oil Refineries Administration in Baghdad or Messrs Maunsell, Posford and Pavry, Abbey House, Victoria Street, Westminster, London, S.W.1. Tenders shall be received by the Director General, Government Oil Refineries Administration, Baghdad accompanied by a further deposit of I.D.'s 25.000 or the equivalent in pounds Sterling not later than Twelve noon on 3rd November 1952 and tenders shall be opened at 10 a.m. on the following day.

Contractors desirous of examining the documents in advance may do so from the 11th August, 1952, at the Office of the Government Oil Refineries Administration, Baghdad, Iraq, or at the Embassy or Legation of the Government of Iraq in Washington, U.S.A., Paris, France, Brussels, Belgium, or Rome, Italy; or by appointment at the offices of Messrs. Maunsell, Posford & Pavry.

Details regarding the refund of deposits will be found in the Instructions to Tenderers.

(sgd) M. Nakib
Acting Director General
Government of Iraq
Oil Refineries Administration

OFFICIAL PROPOSALS

Bids: August 21, 1952

The Port of New York Authority Installation of Ventilating System Pistol Range and Civil Defense Control Room Port Authority Building

PROPOSAL NO. 881

Sealed proposals for the installation of a ventilating system in the Port Authority Building Pistol Range and Civil Defense Control Room, 111 8th Ave., New York 11, will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111 8th Ave., New York 11, until 11:00 A. M. (E.D.S.T.), Thursday, August 21, 1952, at which time and place proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, August 7, 1952.

Bids: August 25, 1952

Lincoln Tunnel, Third Tube

THE PORT OF NEW YORK AUTHORITY

MANUFACTURE, STORAGE AND DELIVERY OF CAST IRON AND CAST STEEL TUNNEL LINING
CONTRACT LT-160.001

Sealed proposals for the manufacture, storage and delivery of cast iron and cast steel tunnel lining for the Third Tube of the Lincoln Tunnel will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A. M., Monday, August 25, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen on and after Thursday, July 31, 1952, at the office of the Engineer of Materials, Room 1110, and copies will be furnished upon deposit of $25 per set. Deposit to be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt should then be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, August 7, 1952.

Bids: August 25, 1952

THE PORT OF NEW YORK AUTHORITY
PORT NEWARK
BUILDING NO. 140
PAVING, UTILITIES AND TRACKAGE
CONTRACT PN-200.005

Sealed proposals for the construction of paving, utilities and trackage for Building No. 140 at Port Newark will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:45 A.M., Monday, August 25, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials, Room 1110, and copies will be furnished upon deposit of $25 per set. Deposit to be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt should then be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, August 7, 1952

Department of Commerce, Bureau of Public

OFFICIAL PROPOSALS

Bids: August 20, 1952

Delaware Memorial Bridge Planting Operations

NOTICE TO BIDDERS
CONTRACT NO. 23

Sealed proposals for Planting Operations along the approaches to the Delaware Memorial Bridge, will be received by the Delaware State Highway Department at the office of the Director, Delaware Crossing Division, Administration Building, Delaware Memorial Bridge, Delaware, until 12 o'clock noon, Eastern Daylight Saving Time, August 20, 1952, at which time and place said proposals will be publicly opened and read.

The work involves the following approximate principal quantities.

Topsoil	1,380 cu. yds.
Peat Moss	76 bales
Manure	36 cu. yds.
Commercial Fertilizer	275 lbs.
Grass Seeding	6,560 sq. yds.
Major Trees	171
Minor Trees	381
Shrubs	1,582
Vines	1,270
Perennials	45 clumps
Bulbs	800

Performance of this Contract shall begin promptly after execution of the Contract and shall be completed on or before November 15, 1952.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the Department.

Each proposal must be accompanied by an acceptable surety bond or certified check to the amount of at least ten (10) per cent of the total amount of the proposal.

The Contract will be awarded or proposals rejected within twenty (20) days from the date of opening proposals. The right is reserved to reject any or all bids.

One set of the Plans and two copies of the Specifications may be obtained from the Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y., after August 8, 1952, upon payment of $10.00.

Any prospective bidder who has made such a deposit may secure extra blueprint copies of the Plans upon payment of 50 cents per drawing and an extra copy of the Specifications upon payment of $2.50 per copy.

Plans and Specifications need not be returned to the Engineers, and the above payments will not be refunded.

The plans and Specifications and other contract documents may be examined at the office of the Engineer, Howard, Needles, Tammen & Bergendoff, or at the Engineers' project office located north of and adjacent to the west abutment of the Delaware Memorial Bridge in the state of Delaware.

State Highway Department
by: J. H. Tyler McConnall, Chairman
W. A. McWilliams, Director
Delaware Crossing Division
August 7, 1952

U. S. Government

Roads, July 30, 1952. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., D.S.T., AUGUST 28, 1952, for Project 1G4-H3-J3, Baltimore-Washington Parkway, Anne Arundel County Maryland. 3.929 miles Concrete Paving and other work from Laurel-Ft. Meade Road to Jessup Road. The approximate quantities of the more important items are: 31,800 cu.yd. Excavation, 15,000 cu.yd. Borrow for Topping, 32,000 cu. yd. Replacing Topsoil, 2,450 tons Hot Asphalt Concrete Base Course, 115,000 sq. yd. Reinforced Cement Concrete Pavement, 2,400 tons Type I-1 Hot Asphalt Concrete Pavement and 4,500 units of Seeding. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposals forms are available upon request at the address given above. H. J. Spelman, Division Engineer.

OFFICIAL PROPOSAL

RATE: $1.50 per line (or fraction) per insertion.
CLOSING DATE: 10:30 A.M. Friday for issue out following Thursday.
SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

BUSINESS AND FINANCE

Steel price hike sends construction costs up

Construction costs are climbing because of the recent steel price increase and higher labor rates.

Engineering News-Record's Construction Cost Index spurted to 585.19 for August (1913 equals 100). The August reading is 2.5% higher than July and 7.8% above August, 1951.

The increase in ENR's Construction Cost Index from August, 1951, to August, 1952 is almost twice the rate of increase from August, 1950 to August, 1951.

Engineering News-Record's Building Cost Index (1913 equals 100) moved up sharply to 423.86 for a 2.2% increase over last month and an increase of 5.9% over August, 1951.

Here again, higher structural steel prices and increased labor rates were responsible for rising costs.

Structural steel, on a base mill price, rose $5.20 a ton, or 26 cents cwt this month. The price is now $97.75 per cwt on a three-mill average.

This is the second general price increase for structural steel since the outbreak of the war in Korea. The first was in December, 1950.

Net result of the increases has been a rise of $3.40 to $3.91 per cwt, a 15% boost in the price of steel.

Labor rates have also climbed since Korea. ENGINEERING NEWS-RECORD's skilled labor index shows a rise of 36.8 cents an hour on the average, since Korea. This is a 14.6% rise.

Common labor rates, on the same basis, went up 26.5 cents an hour, for a gain of 17.3%.

- **Labor rates up**—Common labor rates in 20 cities averaged $1.793 per hour in August, 1.3% above the average July rate and up 9.5% from August, 1951.

Skilled wages, representing the average for three key trades in 20 cities, were up 1.3% from July and stood at $2.885 an hour. This was a 6.8% increase from August, 1951.

For August, key trades were marking up further increases.

Carpenters averaged $2.633 an hour, for a 0.9% increase over July. The rate for structural ironworkers went up 1.5% to $2.832 an hour. Average rate for bricklayers moved up to $3.193 per hour, 1.3% higher than in July.

- **Lumber prices rise**—On the materials side, lumber prices regained some of the ground lost in July. Fir 2x4's averaged $110 per mftbm, up 0.4% from last month, while the average price of pine 2x4's rose 0.2% to $92.533 per mftbm.

Cement again went up a penny to $3.22 per barrel on a 20-cities average.

Wherry Act housing rushed in Hawaii

Contractors building $14 million worth of Wherry Act housing for the Navy in Hawaii are breaking their own speed records.

The program started last year and will finish in 1953.

When it is complete, the naval installations in and around Pearl Harbor will have an additional 1,577 home units available. This will save Navy families the necessity of seeking homes in tourist-packed Honolulu.

The first 355 units were for the Barber's Point Naval Air Station, 20 miles west of Honolulu.

Once started, it was only 77 working days from the Aug. 9, 1951 groundbreaking until the first tenants were moving in on Nov. 7. All units were occupied by Feb. 29 of this year.

Navy officers said it was the fastest job of its kind that they had ever seen done for the Navy.

Another 962 units are now being built at Moanalua, between Honolulu and Pearl Harbor.

Construction of these units started Apr. 17. The first building in the group was finished 26 days later. Within three months of the starting date, 24 families were settled in their new homes and the builders hope to have 100 more family units ready by Aug. 20.

Third unit of the program, another 260 units at Barber's Point, will go under construction in about five months.

Sponsors of all three of these projects are Len Construction Co. and Robert D. Patterson, of Los Angeles, Calif. They will construct, manage, and finance the projects.

The Wherry Act program in Hawaii is distinguished not only for the speed with which it is progressing but also because it is one of the largest programs underway.

July contracts set new record

The volume of contract awards, as reported by ENGINEERING NEWS-RECORD, scored a new record in July, with a total of $2.3 billion reported.

The previous high was reached in December, 1950, when contract award volume hit a total of $1.24 billion.

Public building, other than housing, was responsible for the new record, as it reached nearly $1.2 billion.

This was due primarily to a big assist from the Atomic Energy Commission which let $923 million worth of new contracts for atomic plant construction at the Paducah and Savannah River AEC installations.

• **Highways set record**—Another record was set last month in highway construction which racked up more than $188 million in new contracts.

For the first seven months of 1952, highway contracts were 38% ahead of 1951 and 23% ahead of 1950, which was the previous record year.

States west of the Mississippi, not including the Far West, continued to lead last month with $44 million in highway contracts. This was slightly under the level for May and June of this year.

• **Second highest month for housing**—in private construction, private mass housing, although not setting a record, chalked up $357 million in new contract volume for the second highest month on record.

July was far above the $229 million in private housing contracts for June and was also higher than the $333 million posted in May.

The South accounted for 109 million in private mass housing during July. Virginia, alone, came up with a total of $65 million.

The Middle Atlantic region was second highest in private housing awards with $87 million. New York was responsible for $58 million.

• **Industrial building down**—The steel strike apparently hit industrial building with more telling effect than any other type of construction.

Industrial building contracts dropped off sharply in July with a contract award volume of only $158 million for a five week month. This compared with a volume of $229 million in industrial building contracts for the month of June, which had four weeks.

• **Steel bookings down**—June bookings of fabricated structural steel amounted to 167,492 tons, a decrease of 20% from the previous month, according to the American Institute of Steel Construction. Total bookings for the first half of 1952 were 1.2 million tons.

"Fannie Mae" concentrates on defense housing

Defense housing was in the financing spotlight in June. The activities of the Federal National Mortgage Association during that month consisted mainly of assisting financing of defense housing in critical areas.

"Fannie Mae" reported that 90% of the mortgages purchased by the agency during the month of June were on defense housing.

The remaining 10% were mortgages on disaster and Alaska housing.

Of the $7 million in mortgage purchases, $3 million were purchased over-the-counter, and $4 million were based on commitments previously issued.

• **More commitments**—In addition to these actual purchases of defense housing mortgages, Fannie Mae, during the month of June, also made advance commitments to purchase an additional $7.5 million worth of defense housing mortgages.

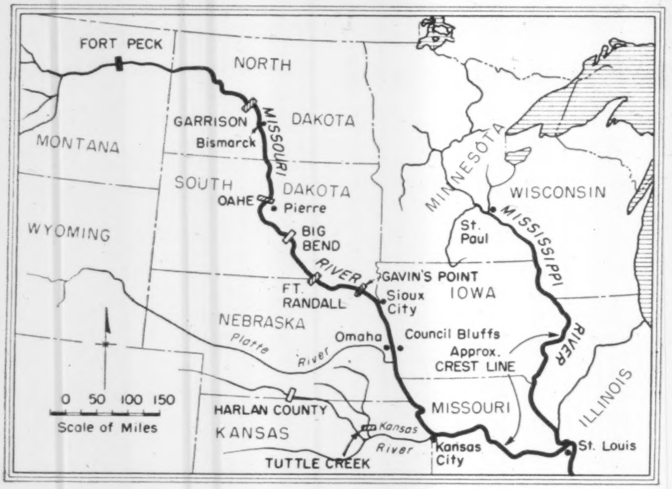
• **Homebuyers tallied**—Estimates on mortgage recordings for the first six months of 1952 indicate $8.5 billion has been spent by home buyers in the $20,000-or-less bracket. This is $400 million more than for a similar period of 1951, according to the National Savings & Loan League.

ENGINEERING CONSTRUCTION CONTRACTS—JULY, 1952

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000*

Five Weeks—Thousands of Dollars (000 Omitted)

	July, 1952							U. S. Cumulative Seven Months		%	Canada
	New England	**Middle Atlantic**	**South**	**Mid-West**	**West of Mississippi**	**Far West**	**Total U. S.**	**1952**	**1951**	**Change '51 to '52 Avg. wk.**	**July 1952**
Public Works											
Waterworks	1,383	3,671	3,005	1,589	6,289	5,609	**21,546**	**139,298**	131,366	+ 3	1,720
Sewerage	7,866	6,367	4,812	5,836	6,583	5,933	**37,397**	**165,576**	183,316	−13	2,614
Bridges	3,679	4,969	7,249	10,287	8,766	5,943	**40,893**	**222,510**	180,770	+19	743
Earthwork and waterways	1,423	1,196	9,320	1,258	12,780	14,436	**40,413**	**324,684**	329,985	− 5	2,163
Streets and roads	5,725	35,465	31,537	41,600	44,054	30,154	**188,535**	**929,214**	674,692	+33	925
Public buildings, residential	6,776	16,481	4,248	6,857	9,345	3,794	**47,501**	**483,704**	516,944	− 9	4,401
Other public buildings	8,077	43,109	993,583	27,397	64,849	59,584	**1,196,599**	**2,141,880**	1,393,043	+49	13,532
Unclassified	10,257	7,343	44,942	4,698	37,380	26,683	**131,303**	**501,288**	664,212	−27	13,389
Total public	**45,186**	**118,601**	**1,098,696**	**99,522**	**190,046**	**152,136**	**1,704,187**	**4,908,154**	**4,074,328**	+17	**39,487**
Federal government (included in above classifications)	16,618	19,618	1,022,451	16,927	108,111	70,759	**1,254,484**	**2,319,704**	1,602,243	+40	23,755
Private											
Bridges	....	2,000	....	....	....	....	**2,000**	**14,520**	11,077	+27	....
Industrial buildings	1,905	29,605	34,787	41,939	45,098	4,814	**158,148**	**1,657,535**	2,569,008	−38	27,516
Com'l. buildings, residential	15,305	86,672	109,411	57,055	76,889	11,711	**357,043**	**1,836,343**	1,144,083	+55	20,196
Other commercial buildings	4,950	15,318	8,578	13,085	7,822	6,892	**56,645**	**373,483**	402,668	−10	7,811
Unclassified	....	250	10,644	291	13,542	7,754	**32,481**	**303,183**	460,405	−36	1,570
Total private	**22,160**	**133,845**	**163,420**	**112,370**	**143,351**	**31,171**	**606,317**	**4,185,064**	**4,587,241**	−12	57,093
Total Engineering Construction:											
July, 1952—5 weeks	**67,346**	**252,446**	**1,262,116**	**211,892**	**333,397**	**183,307**	**2,310,504**	....	....	....	**96,580**
June, 1952—4 weeks	55,871	222,023	219,602	175,105	341,170	126,883	**1,140,654**	....	....	....	62,760
July, 1951—4 weeks	165,144	226,172	282,146	227,025	248,426	229,727	**1,378,640**	....	....	....	157,211
Seven Months—1952	**376,330**	**1,530,574**	**2,725,896**	**1,259,130**	**2,202,713**	**998,395**	....	**9,093,218**	....	+ 2	**713,619**
Seven Months—1951	403,588	1,556,136	1,856,441	1,569,233	2,069,185	1,206,986	....	....	8,661,569	....	667,525
% Change '51 to '52	−10	−5	+42	−22	+3	−20	....	....	....	....	+3



Construction to surge along the Missouri

Last month the Missiouri River, diverted by a weir-type diversion dam, began flowing through the 12 big flood-control and hydropower tunnels of Fort Randall Dam. It was another advance for engineers in their struggle to harness the "Big Muddy."

All up and down the Missouri basin, there is a surge of new activity. As the aftermath of last summer's devastating flood, Congress was generous with new funds to push ahead the Pick-Sloan program during the coming year.

The Army Engineers get $91 million. Brig. Gen. D. G. Shingler, Missouri River Division Engineer, said the new funds would enable the Corps to carry Garrison Dam in North Dakota to 62% of completion by next July, and Fort Randall Dam in South Dakota to about 77% of completion.

Contracts will be let early in September to start construction of Tuttle Creek Dam in Kansas, for which $5 million is provided. The $7.5 million designated for Gavins Point Dam near Yankton, will permit substantial progress on the project for which ground was broken this spring. Another $3 million goes to Oahe Reservoir near Pierre, S. D. Harlan County Dam on the Republican River in Nebraska has been completed.

Gen. Shingler pointed out that the $6.5 million provided for the Missouri River channel stablization project from the mouth to Sioux City, Iowa, is slightly larger than those of the last few years. Work on this project has been hampered by limited funds, floods, and ice runs.

• Construction schedules—Here is a rundown of work as outlined for the coming year by Gen. Shingler:

Fort Randall Dam (appropriation $32.5 million)—Permits completion of Stage III of the main embankment, and continued progress on the powerhouse, spillway and on relocations. Contracts will be left for the remaining earthwork and for miscellaneous powerhouse equipment. Construction schedules call for first production of power at this project in November, 1953.

Garrison Dam (appropriation $31 million)—Permits completion of the intake structure, stilling basin and powerhouse foundation. It insures continuation of existing contracts for the spillway, Stage IV earthwork, and powerhouse equipment. Contracts will be initiated for the powerhouse proper, penstocks and surge tanks, reservoir clearing and miscellaneous relocations.

Oahe Dam (appropriation $3 million)—Permits completion of the first phase of the sheet pile cutoff, and the continuation of the contract for Stage II earthwork on the embankment of the dam. A contract will be initiated for additional earthwork to carry forward this phase of the work. The dam will be about 6% completed by next July 1.

Gavins Point Dam (appropriation $7.8 million)—Permits completion of Stage I earthwork, access roads and the continuation of existing contracts for powerhouse equipment. Contracts also will be let for Stage II earthwork, spillway and miscellaneous powerhouse equipment. The project will be approximately 15% completed by July 1, 1953.

Tuttle Creek Dam (appropriation $5 million)—It is planned to initiate contracts for construction of the first phase of earthwork and embankment, the spillway, outlet works and relocations. This will be an exclusively flood-control project with no conservation pool.

Kansas City (appropriation $3.8 million)—Enables this local flood-protection project to be carried forward to about 90% completion in the next year. It permits the start of construction to raise existing flood walls in the downstream portion of the Armourdale unit; provide lifting facilities for the Chicago stream portion of the Armourdale unit; provide lifting facilities for the Chicago Great Western Railroad bridge, and initiate raising of the Kansas City Terminal bridge in the bridge and approach alteration unit; completion of channel excavation in the upstream portion of the channel improvement, upper Missouri unit; alteration of bridges and rectifying of the channel of the Blue River in the East Bottoms unit; and complete the raising of levees and flood walls and construction of pumping plants in the Fairfax-Jersey Creek unit.

Fall River basin, South Dakota (appropriation $427,000)—This fund will be sufficient to complete the Cold Brook Dam near Hot Springs, South Dakota, the second step in the overall plan for flood protection at that locality. The channel improvement through the city has already been completed and construction of the Cottonwood Springs Dam, which has not been started will complete the plan.

Havre, Montana (appropriation $350,000)—This is the first appropriation of funds for work on an authorized local flood-protection project for Havre. It will permit award of a contract for constructnon on the Bull Hook unit of the project for diverting flood flows around the City of Havre.

Agricultural levees (appropriation $500,000)—permits completion of existing contracts on units under construction, bringing to about 200 miles, the total of agricultural levee units thus far constructed along the Missouri between Sioux City and Kansas City. By next July the agricultural levee program included in the authorized program will be approximately 20% completed.

Missouri River channel project, Kansas City to the mouth (appropriation $2.3 million)—permits 81% of completion by the awarding of new contracts for stabilization work and some incidental work by government-hired labor forces.

Missouri River channel project, Kansas City to Sioux City (appropriation $4.3 million)—permit limited progress on construction work at the more critical points in the section Omaha to Kansas City where agricultural levees have been constructed and where prevention of caving banks is particularly important. This phase of the work will carry the Kansas City-Sioux City reach to about 16% of completion.

• Reclamation plans—Appropriations for the Interior Department have made possible the beginning of construction on four major units of the Bureau of Reclamation's Missouri River basin project in Region 6, K. F. Vernon, Director of the Bureau's Region 6, announced.

Invitations for bids have been issued for the construction of the Tiber Dam on the Marias River southwest of Chester, Mont., a part of the lower Marias unit. Bids will be opened on Aug. 12 and a contract will probably be awarded by the middle of August.

Designs and specifications for the Pactola Dam on Rapid Creek west of Rapid City, S. D., are scheduled to be completed by Sept. 2 and a contract can be awarded soon thereafter.

Specifications will be completed and issued early next month for stripping of the dike area of the Missouri diversion dam on the Missouri River about 22 mi. downstream from Fort Peck Dam in northeastern Montana.

Bids will be asked for major powerplant equipment for the diversion unit in September and October and construction specifications for the dam and power plant will be ready by February 1953, allowing the general construction work to get underway next spring.

Invitations to bid on the construction of a tunnel and access road on the Crow Creek unit, which will make possible the irrigation of 5,000 acres in the vicinity of Toston, Mont., were issued on July 3 and it is planned to issue specifications for the remaining work in February 1953.

The bureau's Lower Marias unit of the Missouri River Basin project is planned to make possible the irrigation of approximately 127,000 acres of land in Hill, Liberty, and Chouteau Counties in north-central Montana. Tiber Dam, a major feature of the unit, will be an earthfill structure 196 ft high above stream bed and will have a crest length of 4,300 ft. The reservoir will have a storage capacity of 1,337,000-acre-ft for irrigation, control of floods, and retention of silt. The intake structure and penstock of the dam will be constructed so as to provide for the possible future installation of an electric power plant of 2,000 kw.

The Pactola Dam on Rapid Creek will also be an earthfill structure rising 220 ft above stream bed and will have a crest length of 1,340 ft, not including a dike section 2,050 ft long. The reservoir will have a capacity of 99,000-acre-ft, serving for irrigation, flood-control, and silt retention purposes.

The plan for the Rapid Valley unit, of which pactola Dam is a part, calls for the supplying of supplemental irrigation water for 8,900 acres now inadequately served and the irrigation of 2,200 acres of new land. Pactola Reservoir, in conjunction with other features of the Rapid Valley unit, will provide water for the municipal use of Rapid City.

The Missouri Diversion Dam will be a low earthfilled structure with a concrete overflow section 520 ft long and an integrated 80 ft long drum gate for controlling discharges.

A canal leading from the diversion works will serve irrigation requirements along its route to Medicine Lake in the extreme northeastern part of Montana.

Steel expansion aided

A major new West Coast steel expansion was approved by the Defense Production Administration for fast tax write-off aid last month. Yolo Steel and Metal Co., Sacramento, got approval for 55% of an anticipated outlay of $81 million for new plant and equipment.

The Yolo approval was the major project in a list of 247 new or expanded defense plant projects approved for tax benefits, totalling $343 million. Second largest certificate went to Pennsylvania Electric Co. for a power project in Clearfield, Pa. It certified in two parts, $26 million at 55% and $14 million at 45% write-off.

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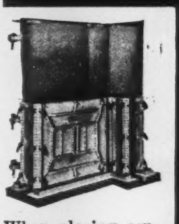

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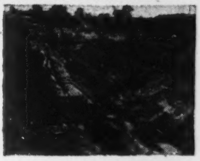
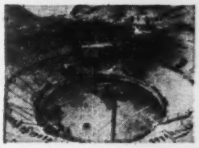


Whether it's HEAVY CONSTRUCTION



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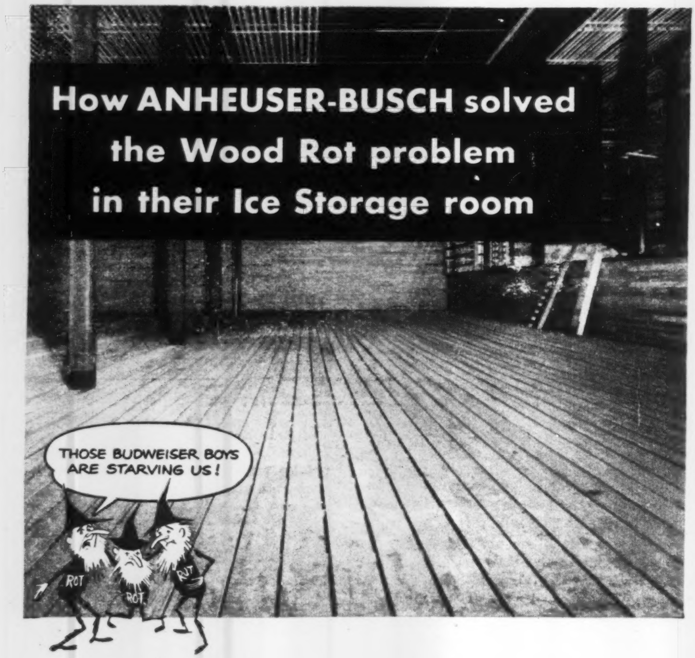

How ANHEUSER-BUSCH solved the Wood Rot problem in their Ice Storage room

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see our CATALOG in SWEET'S FILE ARCHITECTURAL

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High court tests lower one on engineering problems

A case reached the North Carolina Supreme Court last month which involved these questions: whether a municipality can control or overrule the judgment and discretion of the State Highway Commission and whether the courts of the state are to be allowed to "solve engineering problems."

The town of Williamston asked the supreme court to help it force the Atlantic Coast Line Railroad and the State Highway Commission to remodel an underpass on the town's West Main Street on the grounds that it is outmoded, inadequate and dangerous.

At the same time, the highway commission asked that the proceedings be dismissed.

The suit in question involves an underpass built in 1923 which carries U.S. Highway 64 under the Atlantic Coast Line's tracks.

The town of Williamston brought suit against the railroad and the highway commission seeking a court injunction requiring the two parties (railroad and highway commission) to remodel and widen the underpass.

The railroad and the highway commission filed demurrers to the suit and at a hearing before Superior Judge J. Paul Frizzelle recently the railroad contended that, the "courts of North Carolina cannot solve engineering problems," and that the courts cannot tell the State Highway Commission officials "how they shall exercise their judgment."

"Neither municipal corporations nor individual citizens can substitute their judgment for the judgment of qualified engineers," was the railroads answer to the suit. "It affirmatively appears from the complaint that all that the defendant railroad has done is to comply with the lawful regulations of the State Highway and Public Works Commission."

The judge accepted the railroad's position, and the town appealed to the Supreme Court.

A contention of the highway commission that there is no authority in law or equity giving the court authority to control, or allow the town to control, the discretion of a governmental agency of the state, was overruled by the court, and the highway commission appealed.

Material prices to go up

A sharp rise in the ceiling price of practically every kind of plumbing, electrical and heating device will be allowed by OPS if it can work out a simplified method of doing so.

This became apparent as price officials scrambled for a completely new method of granting raises, based on increases in the price of steel and aluminum. Steel and copper increases have already been granted. The aluminum increase may be about one or two cents per lb.

OPS is hunting for a substitute for its earnings standard formula which has kept a lid on prices of building components since April, 1951.

For the time being, the steel fabricating industry's hard-won Regulation 156—allowing prices to be adjusted upward to meet increases in steel and labor costs--is not endangered. But even its future is uncertain.

So are a lot of other things around OPS. One uncertainty stems from the plans of OPS Administrator Ellis Arnall. He is expected to quit. He came originally to stay six months, and that period is almost over. Now that mobilization boss John Steelman has stripped him of any authority over steel prices, he is expected to go back to his Atlanta law practice any day.

• **Faces tough job**—The job of passing steel and aluminum rises along to manufacturers of finish products has OPS stopped cold. Officials are convinced that the earnings standard method is too cumbersome. If applied, this would mean that if an industry as a whole—not just individual firms—is making less than 85% as much profit as it was making before Korea, it can apply for price relief.

The steel and aluminum price increases would drop many metal-consuming industries below this 85% standard. OPS would be required to makes scores of detailed field surveys to determine the level of industry-wide profits under the new prices. This is the job officials say they just can't handle.

They cite two reasons. One, of couse, is the increases in steel and aluminum. They had no such broad-scale rises in mind when they decided on the earnings standard. Second, is a reduction in personnel caused by cuts in appropriations.

They are looking for a simpler device to allow part of the steel and aluminum rises to be passed along quickly to finished products. There's no easy solution. Some OPS experts doubt whether they ever find the simpler formula. But one top offficial said they'd either have to find it, or decontrol many products completely.

For some types of goods, the new formula may not result in quick price rises. This may be true where demand is still soft, as for some household appliances. But the brisk pace of construction is likely to run up prices of components to whatever the new ceiling allows, OPS officials think.

• **Regulation cited**—The problem posed by Regulation 156 is an increase in dollars-and-cents profits it apparently will allow fabricators. When 156 was drawn up, OPS tried to hold down profits by limiting the mark-up to 90% of that used in a pre-Korea base period.

The regulation allows fabricators to figure out their own prices on structural steel and other items intended for field erection. They can include all materials and wage costs. When new steel costs, and wage increases in fabricating plants, are included in the price, 90% of the pre-Korea mark-up will probably result in a greater dollar profit than writers of the regulation originally had in mind.

Reg 156 had hard sledding in OPS. Key officials opposed it on the grounds that it was too liberal. This opposition is springing up again. So far it hasn't gotten far, because of the general confusion in OPS about what its policies should be.

As proposed amendment to the construction price regulation—No. 93—is temporarily on the shelf due to this same confusion. It was intended to help flat-price contractors. One official who was instrumental in pushing it to the point of final decision, has about given up. He blames lack of enforcement personnel. He doubts whether OPS will issue any more changes in regulations unless compliance would be practically automatic.

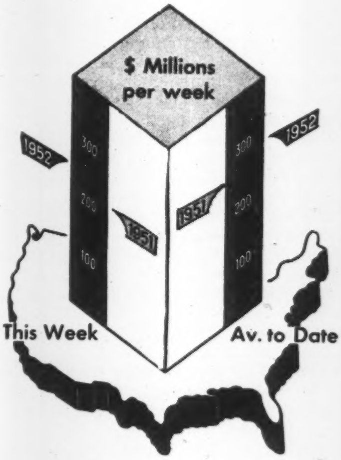
Business Briefs . . .

• **Index up 1 point**—Smith, Hinchman & Grylls monthly building cost index for July rose one point to 268 (1913 equals 100). Increased labor rates and higher material prices were responsible for the rise.

• **Costs up 2%**—The American Appraisal Co. construction cost index (national average) rose 5 points during the first quarter and 6 points during the second quarter, a total of 11 points, or a 2% increase in the first half of the year. June reading of the index was 550 (1913 equals 100).

Activity This Week

As reported to ENR
(in millions of dollars)



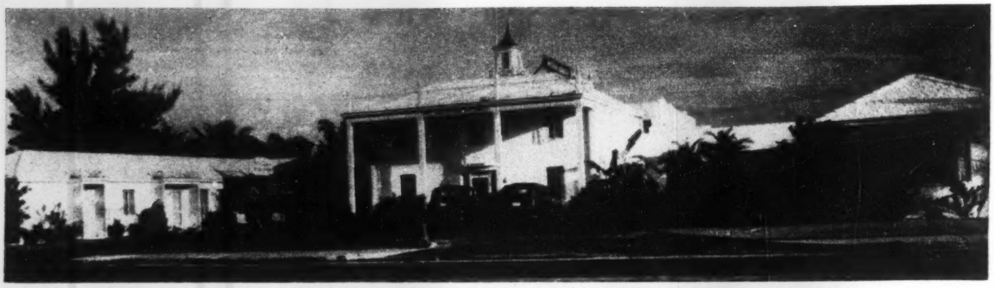
Contracts by type of work

	This Week	Cumulative 32 wks 1952	Cumulative 32 wks 1951	% chge
Waterworks .	$3.1	$142.4	$137.8	+3
Sewerage . . .	10.2	175.6	199.9	−12
Bridges	9.4	246.9	204.0	+21
Highways . . .	39.3	968.3	735.8	+31
Earthwork, Waterways .	4.5	329.0	346.0	−3
Buildings:				
Public	59.4	2,201.1	1,461.9	+51
Housg., pub.	0.4	484.4	540.3	−10
Housg., priv.	63.3	1,899.7	1,211.3	+57
Commercial.	10.6	384.2	431.5	−11
Industrial. .	26.5	1,683.9	2,679.9	−37
Unclassified.	26.4	830.8	1,197.6	−31
Total	**$253.1**	**$9,346.3**	**$9,146.0**	**+2**

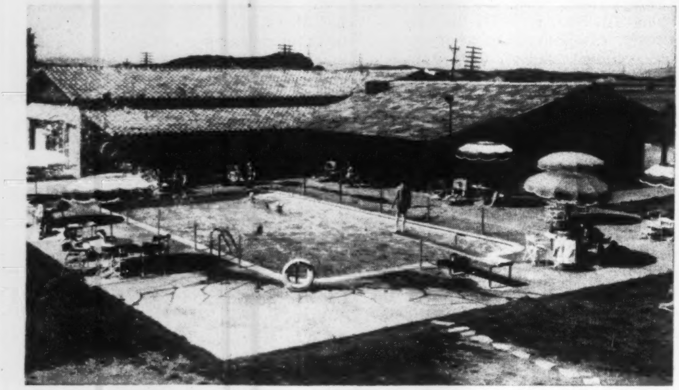
NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes

		Base Year = 100 1913	1926	1949
Constr. cost.	**Aug.**	**585.19**	**281.30**	**122.68**
	July	570.65	274.31	119.63
Bldg. cost. . .	**Aug.**	**423.86**	**229.12**	**120.49**
	July	414.46	224.04	117.81
Volume	**July**	**904**	**367**	**261**



LUXURIOUS MOTELS such as the Mount Vernon Motor Lodge at West Palm Beach, Fla., are providing a considerable construction market along the nation's highways. (Wide World photo.)



SWIMMING POOLS like this one at Rancho Rafael, Ignacio, Calif., provide special attraction for motorists.

MOTEL EL RANCHO at Fresno, Calif., has plenty of frills.

Who buys construction III

Motel boom means construction dollars

Anyone traveling the highways this year is bound to agree that the motor courts have become big business.

And this flourishing trade has also meant income for the builder: Since the end of World War II, the total cost of motel construction is estimated at between $300 and $400 million.

A total of 30,000 motor courts is expected to gross somewhere between a quarter and a half billion dollars from half the tourists on the road this year.

Business is booming. But while it's booming for some, it's not for others. Success from this business begins with the well invested dollar. Keeping the customers coming in is the problem. Giving the customer what he wants is the answer.

The first key to success, thus, is cost of construction.

The typical motel customer wants a clean, modern room, a tile bath, full hotel service, a place to eat dinner and breakfast, perhaps a drink. Court operators must provide all this—and sometimes more—for around seven to ten dollars a night.

- **Cost**—New courts under construction cost up to about $500,000 and usually include restaurants and laundries. This makes the average cost around $12,000 per rental unit. Extra frills like swimming pools, tennis courts and other recreational facilities can easily push the cost above $15,000 per bedroom. With these extras, rents naturally make a similar jump. Of course, many courts have been built for considerably less, but the trend is toward greater service, despite cost construction.

- **Design**—To get the most from his dollar the motel designer follows the successful patterns. The universal trend in motel construction is toward a single roof. He's found that construction is cheaper and faster than a number of independent buildings. Most courts now under construction are open, U-shaped buildings, either ranch-style or colonial. The colonial is a little more expensive but favored in the northern and eastern sections of the country.

Many courts are going to terrazzo floors and radiant heating. Unvented gas and kerosene heaters are often prohibited and noisy or unsightly steam radiators are frowned upon.

Construction of garages is not generally favored. Car ports are often found, but more generally, rental units have protecting shed roofs that serve as patio covering and protection for loading in bad weather.

- **The Motel Association**—One of the biggest assets to the motor court business has been the creation of the Motel Association. This group has done much to correct the mistakes of novice owners by giving them the benefit of experience of the more successful operators. The benefits of the association go to those motels who conform to the association's high requirements.

CONSTRUCTION REPORTS

• Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

ELSIE EAVES, Manager — ***J. A. MAHONEY, Reports*** — ***M. R. ROESSLER, Statistics***

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

N. H., **Meredith**—B.A. 8/13—Town, Town Hall, contr. II, sewers and force main. part of $800,000 Proj. Metcalf & Eddy, 1300 Statler Bldg, Boston, Mass. engrs. (Correction Bid date. CD 7/23.

† Vt., **Burlington**—HANGAR, etc.—B.A. 8/22—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., const. hangar and service bldgs., Municipal Airport. ENG 19-016-53-4. South Burlington. Approx. $500,000. CD 7/9.

BIDS ASKED—BUILDINGS

Conn., **Waterbury**—PLANT—B.A. 8/15—Armour & Co., Union Stockyards, Chicago, 9, Ill., meat processing plant. $600,000. Fordyce & Hamby, 70 W. 40 St., New York, N. Y., archts.

Mass., **Worcester**—SCHOOL—B.A. 8/21—City, School Dpt., 32 Franklin St., school Flagg St. near Richmond Ave. Plans deposit $150. Albert J. Roy, 120 Front St., archt., Architects Collaborative, 96 Mt. Auburn St., Cambridge, assoc. archts. CD 3/21.

▲ Mass. **Revere**—HOUSING—B.A. 8/22—Revere City Housing Auth., 70 Cooledge St., 80 units Veterans Housing Proj. Mass 200-1B, rear of 200-A. $1,000,000. Plans deposit $100. William Drummey, 80 Boylston St., Boston, engr.-archt. CD 9/28/48.

Mass., **Beverly**—HIGH SCHOOL—B.A. 8/28—City, School Bldg. Comn., 203 Whitney Ave., 1 and 2 story, brick, steel, concrete Junior High School, site imprvs. etc. Balch and Cabot Sts., North Beverly. Plans deposit $50. Leland & Larsen, 814 Statler Bldg., Boston, archts. Cleverdon Varney & Pike, 120 Tremont St., Boston, struct. engr. CD 8/28/51.

† Mass., **Ayer**—HOUSING—B.A. on or About 9/17—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, construct, manage and finance 202 units, wood frame, brick veneer Housing, Fort Devens. Inv. No. ENG 19-016-53-19. CD 4/11.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW HAMPSHIRE—State Dpt. P. Wks. and Hys, Concord, **Peter Saluvvi**, 55 Pond St., Waltham, Mass., LB **$415,761**, grading, drainage, surf. tr. gravel 4.544 mi., Proj. S 273 (4), Town of Springfield;

Landers & Griffin, Inc., 800 Islington St., Portsmouth, N. H., LB **$91,738**, grading, drainage, hot b. conc. pavement 0.42 mi. in city of Somersworth. Bids July 24. CD 7/14.

BUILDINGS

LOW BIDS AND CONTRACTS

Anna Jacques Hospital, Office Administration, Highland Ave., Newburyport, Mass. rejected bids July 15, HOSPITAL addn. and alterations, corner Highland and Rawson Aves., LB **$920,000**. est. $700,000. NEWBURYPORT, MASS. CD 7/22 under LB.

MIDDLE ATLANTIC

BIDS ASKED—BUILDINGS

▲ Md., **Baltimore**—LECTURE HALL—B.A. 8/14—Johns Hopkins University, Charles and 34 Sts., 2 story 150x150 ft., brick, marble trim Alfred Jenkins Shriver lecture hall. $1,200,000. Buckler, Fenhagen, Meyer & Ayers, Federal Land Bank Bldg., Zone 18, archts. CD 7/25/51 under **LB.**

Pa., **Bristol**—SCHOOL—B.A. 8/14—Bristol Twp. School Dist., R.D. 3, Bristol, John Fitch Elementary School, $900,000. Howell, Lewis, Shay, Packard Bldg., Phila., archts.

▲ † Md., **Aberdeen Proving Ground**—FIRE CONTROL BLDG.—B.A. 9/11—U. S. Eng., 24 and Maryland Ave., P. O. Box 1715, Baltimore, concrete, steel, block, Central Fire Control Bldg. addn., ENG 18-020-52-52. Approx. $1,000,000. Plans deposit $10. CD 7/8 under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Gull Contrg. Co. Inc.**, 33-15 Lawrence St., Flushing, N. Y., CA **$1,437,485**, Taxiway 27 and extens. Taxiway "S" at New York International Airport, Cont. NYA-260-001. IDLEWILD, N. Y. Port of New York Auth., 111 8th Ave., New York 11, N. Y. Bids June 10. CD 6/12 under LB.

Slattery Const. Co. Inc. 46-36, 54 Rd., Maspeth, N. Y. LB **$893,000.** Cont. CIP-2, const. jetty and fill along Cross Island Parkway, Clearview Park, Queens Boro. WHITESTONE, N. Y. Triborough Bridge & Tunnel Auth., Admin. Bldg., Randall's Island, New York 35, N. Y. Bids July 28. CD 7/15.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton.

Peter W. Kero Inc., 615 Schuyler Ave., Lyndhurst, N. J. CA, **$1,673,259**, grading 3.926 mi. Route 46, Section 1, Dunnfield to Columbia, Warren Co. Bids July 10, awarded July 24. CD 7/22, under LB.

▲ **PENNSYLVANIA**—State Hy. and Bridge Auth., 506 North Office bldg., Harrisburg,

Frank Mashuda Co., Gibsonia, Pa., CA. **$3,458,935.** est. $3,500,000. const. 5.2 mi. rein.-con. pavement 24 ft. wide on each side of divisor, approaches both sides Belle Vernon Bridge over Monongahela River, Washington and Westmoreland Counties. Bids July 11. Awarded July 24. CD 7/16 under LB.

PENNSYLVANIA—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

rejected bids July 11, replacement of 14,222 ft. trolley track area with rein.-con. pavement and const. rein.-con. pavement, variable in width, T. R. 222, Berks Co. LB **$504,819.** CD 7/16 under LB.

PENNSYLVANIA—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

Mack Paving & Constr. Co., Luzerne and C Sts., Phila. 24, Pa., CA. **$956,896**, const. 8,306 ft. divided hy. with crushed aggregate base and bit. surf., 33 ft. wide on each side of divisor and concrete deck I-beam bridge, Aramingo Ave. L. R. 67047 (1), Philadelphia Co. Bids July 11. Awarded July 28. CD 7/16 under LB.

▲ **PENNSYLVANIA**—State Hy. and Bridge Auth., 506 North Office Bldg., Harrisburg,

C. W. Good, Inc., 726 Columbia Ave., Lancaster, Pa., CA **$3,391,596.** est. $3,000,000. Schedule 1, concrete deck I-beam; Schedule 2, continuous concrete deck I-beam; 1 continuous deck plate girder and I-beam bridges, Schedule 3, combined. Rte. 122, Berks and Schuylkill Counties. Bids July 18. CD 7/22 under LB.

MARYLAND—Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington, Va.

Wright Contrg. Co., 504 25 Ave., Columbus, Ga., LB **$761,685**, grading, drainage approx. 4.205 mi. from 1/2 mi. north of Good Luck Rd. to East-West Hy. Proj. 1D1-1E4, Prince George Co. Bids July 25. CD 7/2.

▲ **Square Constr. Co.**, 115 S. Haven St., Baltimore, Md., CA. **$1,120,270.** on Alt. A, Sanitary Cont. No. 400, 700 ft. manholes; 9,000 cy. yds. concrete; 10 1/2 tons rein. steel; 38,300 sq. ft. v.c. liner plates; 6,300 lin. ft. wood piles; 7,750 lin. ft. 30 to 42 in. R.C.C.P., BALTIMORE, MD. City, Bureau of Sewers, 312 Municipal Bldg., Baltimore 2, Md. Bids July 16. CD 7/22 under LB.

† **Pleasanton & Edgell Inc.**, Mary St., Dover, Del., LB **$522,132**, water supply, distr. sys. and sanitary sewerage system, Dover Air Force Base, DOVER, DEL. U. S. Eng., 121 N. Broad St., Phila., Pa. Bids July 16. CD 5/1.

▲† **Ajax Constr. Co., Inc.**, 925 15 St. N. W., Wash., D. C., CA. **$5,266,000**, 23 airmen's dormitories, and 4 mess and administration bldgs., Dover Air Force Base, DOVER, DEL. Dpt. Army, 121 N. Broad St., Phila., Pa. Bids July 8. CD 7/15, under LB.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

- Water Supply
- Sewers, Waste Disposal
- Bridges
- Streets & Roads
- Earthwork, Waterways
- Latin America
- Public Buildings
- Commercial Buildings
- Industrial Buildings
- Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Westwood Gardens Homes**, c/o Matern & York, archts., 90-04, 161 St., Jamaica, N. Y. Owner Builds. $1,000,000. 100 HOUSES on tract on Sylvan Rd., BABYLON, N. Y.

Buhl Const. Co. Inc., 45 W. 45 St., New York 19, N. Y. CA **$788,990**, P. S. 16 SCHOOL, Wilson St., between Bedford and Lee Aves., BROOKLYN, N. Y. Bd. Educ., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids May 29. CD 6/26 under LB.

▲ **Somerset Lawns Homes**, c/o Samuel Paul, archt., 89-15 164 St., Jamaica, N. Y. Owner Builds. **$5,000,000.** 250 HOUSES, 68-acre tract on Clinton Rd., GARDEN CITY, N. Y.

Buhl Constr. Co., 45 W. 45 St., New York 19, N. Y. LB **$635,696**, general contract MUNICIPAL bldg. and accessory GARAGE, GARDEN CITY, N. Y. Supt. P. Wks., 110 7th St., Garden City, N. Y. Bids July 22. CD 6/26.

▲ **Knickerbocker Constr. Corp.**, 600 5th Ave., New York, N. Y. Owner Builds. Approx. **$1,500,000.** 14 story OFFICE and SHOWROOM, 39 E. 54 St., NEW YORK, N. Y. Emery Roth & Sons, 575 Madison Ave., New York, N. Y., archts.

▲ **Disabled American Veterans**, 500 Park Ave., New York, N. Y. Separate Contracts. **$3,000,000.** four 6-story APARTMENTS, on site bounded by 62 St., 65 Pl., 52 and 53 Aves., RIDGEWOOD, N. Y. Leon & Lionel Levy, 158 E. 35 St., New York, N. Y., archts.

Frank Solasin, 9 N. Dudley St., Camden, N. J., Separate Contracts, **$300,000**, RESIDENTIAL DEVELOPMENTS, BELIMAWR, N. J. Dante J. D'Anantasio, 1815 Federal St., Camden, N. J., archt.

▲ **Ledger Constr. Co.**, Room 1609, Western Savings Fund Bldg., Phila., Pa. Separate Contracts, **$2,000,000** APARTMENT DEVELOPMENT, BORDENTOWN, N. J.

† **Daley & Co., Inc.**, 1472 Cornell Ave., Trenton, N. J., LB, **$427,000**, post HEADQUARTERS, administration bldg., fire stations, etc. FORT DIX, N. J. Dpt. Army, 121 N. Broad St., Phila., Pa. Bids July 24. CD 7/10.

▲ **Hudson Terrace Apartments**, c/o Erwin Gerber, archt., 1180 Raymond Blvd., Newark, N. J., Owner Builds, **$2,000,000**, three 5 story APARTMENTS on 4 acre tract on Hudson Terrace and Myrtle Ave., FORT LEE, N. J.

Hillside Farms Inc., 105 Rickey Ave., West Collingswood N. J., Separate Contracts, **$405,000**, RESIDENTIAL DEVELOPMENT, Grove & Laural Sts., HADDONFIELD, N. J. Lester H. Weckesser, Wallworth Apartments, Haddonfield, archt.

▲ **Madison Park Homes**, c/o Erwin Gerber, archt, 1180 Raymond Blvd., Newark, N. J., Owner Builds, **$1,000,000**, 74 HOUSES in tract at Ridgedale and Park Aves., MADISON, N. J.

Joseph L. Muscarelle, Ltd., 42 1 St., Hackensack, N. J., CA, **$100,000**, MANUFACTURING bldg. and offices on 1 acre tract in Bergen County Industrial Terminal, TETERBORO, N. J. Anton Smith & Co., W. 52 St., New York 19, N. Y. Alexander Summer Industrial Service Co., 790 Queen Anne Rd., Teaneck, N. J., engrs.

Spera Const. Co., 227 State St., Harrisburg, Pa. CA **$350,000.** CHURCH, school at 34 and Market Sts., CAMP HILL, PA. Harrisburg Catholic Diocese, 111 State St., Harrisburg, Pa. Lawrie & Green, 321 N. Front St., Harrisburg, Pa., archts.

Joel D. Schwartz, 4634 N. 5 St., Phila. Pa., Separate Contracts. Approx. **$800,000.** RESIDENTIAL DEVELOPMENT, Garden Rd. and Bethlehem Pike, ERDENHEIM (Phila. P. O.) PA. I. W. Levin, 1531 Belmont Ave., Phila. Pa. archt.

Moyer Bros., 2605 Beale Ave., Altoona, Pa., LB **$818,000.** Senior HIGH SCHOOL, MT. UNION, PA. Mt. Union Area School Auth., Mt. Union, Pa., Hunter, Caldwell & Campbell, 5 Ave. and 36 St., Altoona, Pa., archts.

Rose & Fisher, 701 Republic Bldg., N. S., Pittsburgh, Pa., CA. Approx. **$300,000.** 1 story 100x300 ft. brick, block, WAREHOUSE, Stowe Twp., PITTSBURGH, PA. B. Thorpe Co., 218 Bakewell Bldg., Pittsburgh, Pa., Brandon Smith, 900 Century Bldg., Pittsburgh, Pa., archt.

▲**Potteiger Co. Inc.**, 328 Tulpehocken Ave., Reading, Pa. LB **$1,059,700.** State Subsidized HOUSING proj., READING, PA. Reading Housing Auth., 1301 Schuylkill Ave., Reading, Pa. Muhlenberg, Yerkes & Muhlenberg, Ganster Bldg., Reading, Pa. archts.

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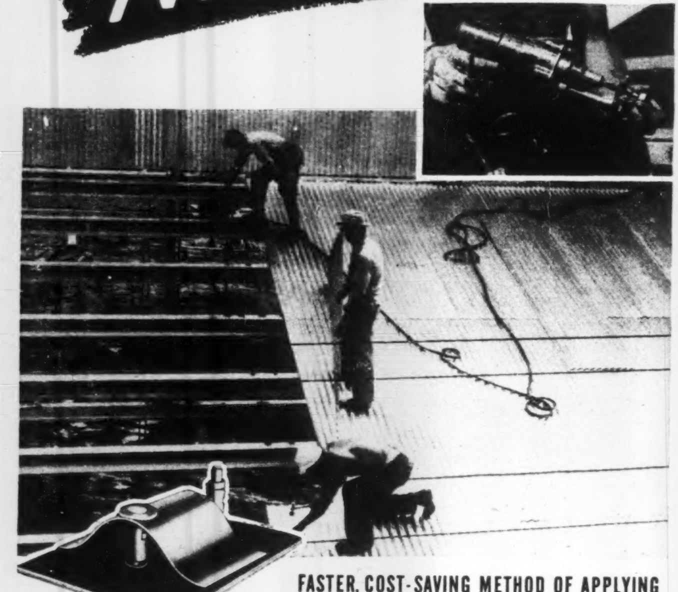

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DIVISION OF GREGORY INDUSTRIES, INC., LORAIN, OHIO

Ballard Contractors, Inc., 210 E. Lexington St., Baltimore 2, Md. Owner Builds. Approx. **$612,000**. 102 brick, 16x28x24 ft., row type DWELLINGS, Endsleigh Ave., Chilworth Ave., Dornton Rd. near BALTIMORE, MD.

▲† **George Hyman Const. Co.**, 1010 Vermont Ave., N. W., Wash., D. C., LB **$2,737,000**, HOSPITAL wing ward and auditorium, outside utilities at U. S. Soldiers Home, Serial No. CIV eng. 49-080-52-42. WASH., D.C. U. S. eng., First and Douglas Sts., N.W., Wash. 25, D. C. Bids July 29. CD 6/18.

Anthony Cesarini, Hockessin, Del., CA, **$82,000**, WAREHOUSE ADDNS., alterations, NEWARK, DEL. Eastern States Farmers Exchange Inc., 26 Center St., West Springfield, Mass. McClintock & Craig, 458 Bridge St., Springfield, Mass., archts.

Ernest Di Sabatino & Sons Inc., 2601 W. 4 St., Wilmington, Del., CA, **$560,000**, Manor Park Elementary SCHOOL, NEW CASTLE, DEL. New Castle Special School District, New Castle, Del. Bids July 9. CD 7/15, under LB.

W. D. Haddock Constr. Co., Elsmere, Del., CA, **$520,000** SYNAGOGUE, and school, WILMINGTON, DEL. Congregation Beth Sholom, c/o Philip Cohen, Du Pont Bldg., Wilmington, Del. Maurice Courtland, 2 W. 29 St., New York, N. Y., archt. CD 9/19/51, under LB.

Lewis C. Bowers & Sons Inc., 341 Nassau St., Princeton, N. J. CA, **$119,000**, fertilizer PLANT, SMYRNA, DEL. Warner W. Price Co., Inc., Smyrna, Del.

SOUTH

BIDS ASKED—BUILDINGS

† **Ga., Albany**—FIRE STATION, etc.—B.A. 8/28—Dpt. Navy, Officer in Charge of Construction, Box 365 Naval Base, S. C., fire station, motor transportation and maintenance shops, Marine Corps Depot of Supplies, NOY 70668. Plans deposit $100. CD 2/5/51.

▲ **Tenn., Manchester**—HOSPITAL—B.A. 8/26—Coffee Co., Manchester, hospital. $1,000,000. Extended date. Bianculli, Palm & Purnell, 501 Cherry St., Chattanooga, archts. CD 7/29.

Fla., Sanford—HOSPITAL—B.A. After 9/1—Bert Fish Memorial Hospital, c/o Medwin Peek, archt., Pioneer Bldg., Sanford, hospital, $600,000. CD 7/21.

Ga., Savannah—PLANT ADDNS.—B.A. 9/22—Southern Paperboard Corp., c/o J. E. Sirrine & Co., engrs., 215 Main St., Greenville, S. C., plant addns. Extended date. CD 7/28.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

VIRGINIA—State Hy. Dpt., Richmond cancelled bids to have been opened July 25, b. conc. paving 4.22 mi. Rte. 11, Proj. M. 1695-06. Washington Co. CD 7/18.

▲ **VIRGINIA**—State Hy. Dpt., Richmond,

American Asphalt Products Co., 60 "P" St., S. E. Wash. D. C., CA. **$362,733**. b. conc. surf. 2.93 mi. Rte. 7, Proj. 2729-02, Fairfax Co.;

Paul Slusher Const. Co., Floyd, Va., CA. **$159,079**, stabil. base, bit. hard surf. 7.6 mi. Rtes. 620, 627, 707, Proj. 139704, Wise Co.;

Albert Bros. Contrg. Inc., 1102 Tennessee St., Salem, Va. CA. **$283,351**. macad. and bridge 2.52 mi. Rte. 460, Proj. 1915-03-04, Campbell Co.;

CA **$191,058**. macad. road 1.7 mi. Rte. 460, Proj. 1935-07-08, Giles Co.;

Echols Bros. Inc., Box 869, Staunton, Va., CA. **$132,338**. widen. and resurf., macad. b. conc. top 0.7 mi. Rte. 522, Proj. 2693-02, Warren Co.;

Norfolk Contr. Co., 4100 Indian River Rd., Norfolk, Va. CA. **$65,919**, 0.81 mi. surf. approach and 51 ft. bridge Rte. 637, Proj. 1320-14-15, Chesterfield Co.;

W. H. Scott, Inc., Box 48, Franklin, Va., CA. **$79,423**, grading, surf. local mat. 3.6 mi. Rte. 779, Proj. 1301-04, Accomack Co.;

D. E. Worley, Rocky Mount, Va., CA **$69,148**, grading, stabil. base, bit. surf. 4.3 mi. Rte. 634, Proj. 1312-06-07. Brunswick Co. Bids July 25. CD 7/18. Grand total $1,343,059.

▲† **B. B. McCormick & Son**, Jacksonville Beach, Fla., LB, **$2,129,000**, runway, taxiways, parking apron, security bldg., entrance roads, Naval Auxiliary Air Station, NOY 71525, SANFORD, FLA. Dpt. Navy, Officer in Charge of Construction, Box 465, Naval Base, S. C. Bids July 24. CD 7/9.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

W. R. Aldrich & Co., Baton Rouge, La., LB. **$697,493**, grading, widen. existing bridges, Portland c. conc. pavement, etc. 7.553 mi. State Rte. No. 1500, Erwinville-Livonia Hy., State Proj. N. 8-02-10, FAP NO. F. I. 185 (4), Pointe Coupee Parish;

T. L. James & Co., Inc., Ruston, La., LB. **$167,911**, grading, drainage structures, widen existing pavement, etc. 2.867 mi. East Main St. and Center St. (New Iberia) State Proj. Nos. 4-05-11 and 55-07-10, Iberia Parish;

Barber Bros. Co., 2636 Dougherty St., Baton Rouge, La., LB. **$123,670**, bit. binder course surf. existing slab, etc. 10.281 mi. Lobdell-Erwinville Hy. State Rte. No. 1500, State Proj. Nos. 6-01-13 and 8-02-11, West Baton Rouge and Pointe Coupee Parishes;

Pankey Wheat, Oakdale, La., LB. **$70,533**, shell surf. etc. 8.51 mi. Pecan Island-Forked Island Hy., State Rte. No. 26, State Proj. No. 207-01-09, Vermilion Parish; LB. **$75,603**, shell surf., etc. 7.765 mi. Pecan Island-Forked Island Hy., State Rte. No. 26, State Proj. 207-01-10, Vermilion Parish. Bids July 23.

Sullivan, Long & Hagerty, 800 Fourth Ave. N., Birmingham, Ala., LB **$546,195**, WW imprvs., MURFREESBORO, TENN. City, Murfreesboro, Tenn. Bids July 23. CD 6/27.

BUILDINGS

LOW BIDS AND CONTRACTS

English Constr. Co., Altavista, Va., CA. **$701,625, Fort** Lee Consolidated SCHOOL, HOPEWELL, VA. Prince George Co. Bd. Educ., Hopewell, Va. Bids June 24. CD 6/4.

† **Grannis, Sloan, Thompson & Street Co.,** Pig Point, Portsmouth, Va., CA. **$125,600,** alterations to 5 QUARTERS BLDG., Marine Corps Forwarding Depot, NOY 74840. PORTSMOUTH, VA. P. Wks. Office, Headquarters, Fifth Naval Dist., Norfolk 11, Va. Bids June 27. CD 6/20.

J. Kennon Perrin, 6000 W. Broad St., Richmond, Va., CA Approx. **$100,000.** bus TERMINAL, RICHMOND, VA. Trailways Bus Terminal, Inc., 9th and Broad Sts. Richmond, Va.

Interstate Constr. Co., 2317 S. Blvd., Charlotte, N. C. CA. **$309,871,** Mayo Elementary SCHOOL, DARLINGTON, S. C. Darlington Co. School Dist., Darlington, S. C. Bids July 11. CD 6/20.

Harper & Bowers, Estill, S. C. Owner Builds, Approx. **$100,000.** PLANT addns., ESTILL, S. C.

Atlanta Paper Co., 950 Marietta St. N. W., Atlanta, Ga., Owner Builds, **$120,000,** PLANT. ATLANTA, GA.

E. J. Strickland Constr. Co., 2652 S. W. 37 Ave., Miami, Fla. CA, **$100,000,** WAREHOUSE—store, CORAL GABLES, FLA. W. W. Segal, c/o contractor.

S. F. MacKenzie Constr. Co., Box 1351, Ft. Pierce, Fla. CA, **$103,990,** municipal light and POWER PLANT Div. 1, expansion program, FORT PIERCE, FLA. City Comn., Fort Pierce, Fla. Bids July 24.

Norman F. Meyer Constr. Co., 1470 N. W. 21 St., Miami, Fla., Owner Builds, **$350,000,** APARTMENT bldg., JUNO BEACH, FLA.

Art Harper, c/o Hugo R. Broleman, Jr., archt., 101 W. Pine St., Orlando, Fla., Owner Builds, **$300,000,** MOTOR COURT, WINTER PARK, FLA. CD 7/28.

▲ **Cornel Development Co.,** 1401 Old Mayfield Rd., Paducah, Ky. Owner Builds. Approx. **$2,000,000.** 250. RESIDENCES, PADUCAH, KY.

▲ **Columbus Plastering Co.,** Murrah Bldg., Columbus, Ga. Owner Builds, **$3,000,000** 250 RESIDENCES, MONTGOMERY, ALA.

James E. Green, Johnson City, Tenn., LB **$565,000.** PLANT, ELIZABETHTON, TENN. Tri-State Container Corp., c/o D. R. Beeson, archt., Johnson City, Tenn. Bids July 25. CD 7/15.

Armstrong Constr. Co., Kingsport, Tenn., CA **$557,100.** Andrew Johnson SCHOOL, KINGSPORT, TENN. City, Kingsport, Tenn., Bids. July 28. CD 7/14.

▲ **Norfolk Co. Inc.,** 624 Falls Bldg., Memphis Tenn. Owner Builds. Approx. **$1,000,000.** 125 RESIDENCES, MEMPHIS, TENN.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† Wis., **Baraboo**—B.A. On or About 8/15—U. S. Eng., Officer of the Resident Engineer, Badger Ordinance Works Baraboo, rehabilitation of roads, drainage facilities within Badger Ordinance Works, Serial No. ENG 47-013-53-4.

† O., **Dayton**—WAREHOUSE—B.A. 8/28—U. S. Eng., 830 W. Broadway, Louisville 3, Ky., con st. AMC warehouse, Gentile Air Force Specialized Depot. Serial No. ENG 15-029-53-16. Plans deposit $15.

BIDS ASKED—BUILDINGS

Ill., **Glencoe**—SCHOOL ADDN.—B.A. 8/25—School District 35, 266 Linden St., Glencoe, 2 story, bsmnt. North School addn., $800,000. Armstrong, Furst & Tilton, 11 S. La Salle St., Chicago, 3, Ill. archts. CD 9/10/51.

▲ Ind., **Hammond**—SCHOOL—B.A. 8/28—School City of Hammond, 5935 Hohman St., Hammond, 2 story Woodrow Wilson School, $1,200,000. Warren Holmes Olds Tower, Lansing, Mich., archts. CD 3/19.

▲ Mich., **Detroit**—CITY-COUNTY BLDG.—B.A. 10/1—City and Wayne Co., Albert E. Cobo, chmn. City-County Bldg. Auth., 14 and 20 stories, bsmnt., and sub-bsmnt., city-county bldg., Cont. CC-2. **$25,000,000.** Harley, Ellington & Day, Inc., 153 E. Elizabeth St., archts. CD 7/1.

Wis., **Watertown**—SCHOOL—Bids Asked—St. Henry's Catholic Congregation, Watertown, 2 story, bsmnt., 70x135 ft., irregular, steel, brick, parochial school, E. Brielmaier & Sons Co., 735 N. Water St., Milwaukee, Zone 2, archts. CD 3/7.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Great Lakes Dredge & Dock Co.,** 213 Euclid Ave., Cleveland, O., CA. **$1,976,640,** East 55 Street Sea Wall, incl. filled steel-sheet-pile cells, concrete caps and appurtenant work. S. R. 2, Sect. 18-67 (UI-329) (6), Part No. 1, Cuyahoga Co., OHIO. State Hy. Dpt., T. J. Kauer, Dir., Columbus, O. Bids July 22. CD 7/25 under LB.

† **V. N. Holderman, Inc.,** 890 Oakland Park Ave., Columbus, O., LB **$63,524,** Portland cement concrete aircraft parking pavement at Naval Air Station, COLUMBUS, O. Commandant, Fourth Naval Dist., Columbus, O.

R. L. Longston, Wolf Creek Pike, Dayton, O., LB **$149,935.** est. $172,398, pave Monument Ave. from Keowee to Finlay St., DAYTON, O. City, Municipal Bldg., Dayton, O. Bids July 17. John Hall, city engr. CD 7/9.

R. G. Mattern, 2310 N. Western St., Dayton, O., LB **$68,000,** sanitary sewer siphon in Carrmonte Sewer Dist., DAYTON, O. Montgomery Co. Comrs., Court House, Dayton, O. Bids July 17. CD 7/9.

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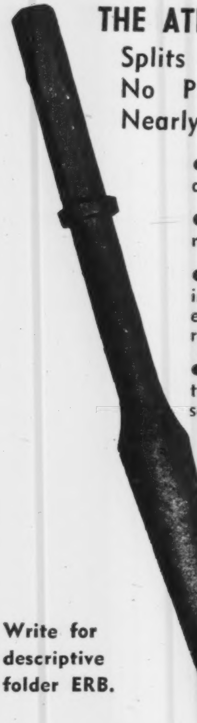

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GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
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† **George W. Timmons**, 780 W. Lane St., Columbus, O. LB Approx. **$285,800**, radiological test bldg., Wright-Patterson Air Force Base. DAYTON, O. U. S. Eng.; 830 W. Broadway, Louisville, Ky. Bids July 29. CD 7/18.

George Oberer, 441 E. Siebenthaler St., Dayton, O., CA **$43,054**, water line on Guenther, Little Richmond and Schroeder Rds., DAYTON, O. Montgomery Co. Comrs., Court House, Dayton, O. Bids July 17. CD 7/9.

C & C Constr. Co., 2001 E. Pontiac St., Fort Wayne, Ind. LB **$323,400**, pumping station, screening equip., low service pumps, high-service pumps, washwater pumps, piping, electrical, heating, settled-water flumes and dry chemical feeder for WW, DEFIANCE, O. City, Wm. E. Daoust Service-Safety Dir., Defiance, O. Bids July 23. CD 6/10.

Contracting Constr. Co., Inc., Danville, Ill., LB, **$170,000** municipal airport along Industrial Hy. at E. J. and E. R. R., GARY, IND. City, Gary, Ind. CD 6/12, under LB.

▲ **Santucci Constr. Co.**, 5044 Carol St., Skokie, Ill., CA, **$1,760,400**, Upper Des Plaines Interceptor Sewers, City of Des Plaines, Village of Mt. Prospect, Main, Elkgrove and Wheeling Twps., CHICAGO, ILL. Sanitary District of Chicago, 910 S. Michigan Ave. Chicago, 5, Ill. Bids July 7, awarded July 15. CD 7/16, under LB.

E. A. Meyer Constr. Co., 1539 Morrow St., North Chicago, Ill., CA., **$75,505**, c. conc. paving WAUKEGAN, ILL. Lake Co., Court House, Waukegan, Ill. Awarded July 19.

Tanton Constr. Co., Milford, Mass., CA. **$80,552**, grading, drainage, structures, stabilized aggregate surf. 24 ft. wide 3.34 mi. on Pierson Road, Proj. 118 (C1), Genessee Co., FLINT, MICH. Genessee County Rd. Comrs., 211 W. Oakley St., Flint 3, Mich. Bids July 15. CD 7/10.

United Const. Co., 320 Houseman Bldg., Grand Rapids, Mich., CA. **$76,954**, 5,770 ft. 8, 10, 12, 24, 27, 30, 36 in. sewer Oregon St., LAPEER, MICH. City, Fred Stephenson, City Clk., Lapeer, Mich. Bids July 21. CD 7/7.

Smith & Andrews Constr. Co., 14290 Myers Rd., Detroit, Mich., CA. **$97,945**, brick beach house, Martindale Beach, Kensington Metropolitan Park, PONTIAC, MICH. Kensington Metropolitan Comn., Pontiac, Mich.

Northeast Constr. Co., 4105 Towsend St., Detroit, Mich., CA, **$126,167** 22,370 ft. 8- to 12-in. sanitary sewer mains, manholes and risers, ST. CLAIR SHORES, MICH. City, St. Clair Shores, Mich. Bids June 16.

Denton Constr. Co., General Motors Bldg., Detroit, Mich., CA, **$179,443**, c. conc. 60,000 sq. yds. pavement various streets, ST. CLAIR SHORES, MICH. City, St. Clair Shores, Mich. Bids June 16.

Denton Constr. Co., 7-170 General Motors Bldg., Detroit, Mich., CA, **$75,812**, c. conc. paving 25,000 sq. yds. various streets, ST. CLAIR SHORES, MICH. City, St. Clair Shores, Mich. Bids July 7. CD 6/26.

BUILDINGS

LOW BIDS AND CONTRACTS

Clemmer Const. Co., 134 E. Thornton St., Akron, O., CA **$986,116**, general const. Roswell Kent Junior HIGH SCHOOL, at Hammel St. and Barbara Ave., AKRON, O. Bd. Educ., 70 N. Broadway, Akron, O. Bids July 15. CD 6/23.

Juvenile Detention Home, Court House and Court House Annex, Cincinnati, O., rejected bids June 17, 2 story bsmnt., rein.-con., cross-shape YOUTH CENTER, incl. classroom, 2 dormitories, Auburn Ave., LB **$597,100.** est. $600,000. CINCINNATI, O. CD 6/3.

H. F. Juergens Co., 15430 Edgewater Dr., Lakewood 7, O., CA. **$868,780.** est. $1,500,000, general const. 2 story 25-room brick SCHOOL at 15700 Lotus Dr., Charles W. Elliott Junior High School, CLEVELAND, O. Bd. Educ., 1380 E. 6 St., Cleveland 14, O. Bids July 21. Awarded July 28. CD 7/25 under LB.

▲ **Dunham Realty Co.**, 3775 Eastway Rd., South Euclid, O. Owner Builds. **$1,000,000.** 1 story 68 000 sq. ft. brick, block FACTORY for lease to Ohio Electric Mfg. Co., 5900 Maurice Ave., Cleveland, O., for production of jet engine parts, MAPLE HEIGHTS, O. Jules Schwartz & Assoc., 2536 Euclid Ave., Cleveland, 14, O., archts., Max Newman, Pres., c/o owner, engr.

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Walvern Investment Co. and Stein Home Builders Inc., 6575 York Rd., Parma, O., Owner Builds. Approx. **$710,000.** 61 HOUSES, **Wetzel Ave., PARMA,** O.

Selby Constr. Co., 13542 Detroit Ave., Lakewood 7, O. Own Forces. Approx. **$700,000.** thirty-eight, 1½ story single HOUSES between **Bonniebank and Westover** Rds., **ROCKY RIVER, O.**

Emanuel Katzman & Co., 116 Linden **Ave.,** Youngstown, O. CA. Approx. **$640,000.** general const. 2 story Jewish COMMUNITY BLDG., Gypsy Lane, YOUNGSTOWN, O., **Jewish Federation,** M. A. Nadler, pres., **646 Bryson** St., **Youngstown, O.** Scheibel & Shaffer, **1301 Realty** Bldg., **Youngstown,** O., archts. **Awarded July 17.** CD **11/8/51.**

Wm. P. Jungclaus Co., 825 Massachusetts **St., Indian**-anapolis, Ind., **CA,** general contract;

Freyn Bros., 1928 **N.** Illinois St. Indianapolis, **Ind.,** CA, heating, ventilating and plumbing

B & G Electric Co., 1626 N. Euclid St., Indianapolis, Ind. CA, Total Est, **$521,948,** electrical work for CANCER RESEARCH bldg. at Indiana University Medical Center, INDIANAPOLIS, IND. Indiana University Medical Center, Indianapolis Ind. Awarded June 25. CD 6/27.

▲ **Arnold Lies Co.,** 1515 New York Ave., Aurora, Ill., LB, **$1,150,510, 4** story, bsmnt. face brick, HOSPITAL, AURORA, ILL. Mercyville Sanitarium, Aurora, Ill. Mark Pfaller 8225 Ravenswood St., Milwaukee, Wis., archt.

Sherman Olson Co., 600 W. Jackson St., Chicago 6, Ill. CA, **$770,000,** 100,000 sq. ft. FACTORY, BARRINGTON, ILL. Barco Mfg. Co., 1801 W. Winnemac St., Chicago, Ill. Awarded July 22. CD 6/26.

Design Inc., 906 Sidney St., St. Louis, Mo., CA. **$750,-000,** HOTEL ALTERATIONS, CHICAGO, ILL. Congress Hotel Inc., Michigan Blvd. at Congress St., Chicago, **Ill.** Holabird & Root & Burgee, 180 N. **Wabash St., Chicago, 1, Ill.,** archts. **Awarded July 18.**

Gerhardt F. Meyne Co., 7 S. Dearborn St., Chicago, 3, Ill., CA. **$500,000,** alterations one half of 5th floor OFFICE, **CHICAGO, ILL.** Field Enterprises Inc., **Merchandise** Mart, **Chicago, 54,** Ill. **Awarded July 22. Naess & Murphy, 80** E. Jackson St., **Chicago, Zone 4, archts.**

J. E. Le Fevre, 1235 W. Grand Ave., Chicago, Ill., CA, **$120,000,** LABORATORY, 1140 E. 103 St., CHICAGO, ILL. Ninol Laboratories, 1719 S. Clinton St. Chicago, Ill. J. W. Viger, 222 S. Wal-Pella St., **Mt. Prospect,** Ill., archts. Awarded July 14.

Emil Bozevsky, 5314 W. 25 St., Chicago, Ill., CA, **$90,000** FACTORY, CHICAGO, ILL. Parkview Metal Products Co., 1131 W. Eddy St., Chicago, Ill. Awarded July 23. CD 4/9.

Slezak Constr. Co., 5901 N. Leonard St., Chicago, Ill., LB, **$390,000,** 4 story, CONVENT and school, CHICAGO, ILL. St. Mary of the Angels Church, 1825 N. Wood St., Chicago, Ill. Bids July 15. CD 6/30.

Klefstad Engr. Co., 4444 **W.** Montrose **Ave.,** Chicago, Ill., CA, Design and construct, **$85,000,** 10,000 sq. ft. FACTORY ADDN., FRANKLIN PARK, ILL. Era Tool & Engr. Co., 9240 W. Belmont Ave., Franklin Park, Ill. Awarded July 20.

▲ **The Selmer Co.,** 128 N. Pearl St., Green Bay, Wis., CA, **$1,448,916,** 1 story part bsmnt, 360x840 ft. WAREHOUSE at Ashwaubenon, GREEN BAY, WIS. Red Owl Inc., **Hopkins,** Minn. Bids July 22. CD 7/29, under **LB.**

▲ **Gold Star Homes, Inc.,** 18926 Schoolcraft St., Detroit, Mich. Owner Builds. **Approx. $1,600,000.** 147 1½ story brick HOMES, **Brody, Allen** and Reeck Rds., ALLEN PARK, MICH.

Spence Bros., 417 McCoskry **St.,** Saginaw, Mich., CA. **$832,000.** general contract, 110-bed brick, concrete CUSTODIAL BLDG., **Caro** State Hospital, CARO, MICH. State of **Michigan,** State Bldg. Dpt., Lansing, **Mich.** Bids June 24. **CD 7/9,** under LB.

August B. Johnson Co., Flint, Mich., LB. **$543,987.** Est. $600,000. general contract 1 and 2 story 115x135 ft. brick, cinder blocks and class FIELD HOUSE-GYMNASIUM, Oak Grove Campus, **FLINT,** MICH. Flint Junior College, **J. Fred Totten,** Pres., Flint, Mich. Bids July 15 **CD 6/27.**

Burt Homes, Inc., 4055 Joy St., **Detroit,** Mich., Owner Builds. **$500,000. 45 brick** HOMES **on Rosemary St.,** OAK PARK, MICH.

Gerry Richter, Marlowe St., Oak Park, Mich., Owner Builds. **$700,000.** 65 brick single HOUSES, **Marlowe St., OAK PARK, MICH.**

K. W. Mills, Inc., Royal Oak, Mich., **CA. Approx. $900,000.** 85 brick HOMES, **Northwood sub-division,** Linwood, Woodland, **Ferncliff** Aves., ROYAL OAK, MICH. **Realty Service Co. (Broker), 1800 N.** Woodward St., **Royal Oak, Mich.**

Christman Constr. Co., 408 Kalamazoo **Plaza, Lansing,** Mich. **LB. $652,700. est.** $1,000,000. **general contract 2 story brick, steel Tuberculosis** HOSPITAL **unit, 100-bed capacity, Traverse** City **State** Hospital, TRAVERSE CITY, **MICH.** State, **A. N.** Langius, Dir., State Bldg. Dpt. Lansing, **Mich. Bids** July 22. CD 6/25.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Tex., San Angelo**—RUNWAYS—B.A. 8/22—U. S. Eng., **100 W. Vickery St., Fort Worth, runways for** Van Court **Auxiliary Airfield, 310,930 sq. ft. asph. paving, Goodfellow Air Force Base. Approx. $1,500,-000.** CD 11/1/51, under LB.

† **Tex., Fort Worth**—TAXIWAY, etc.—B.A. 9/16—U. S. Eng., 100 W. Vickery St., taxiway extens., 139,000 sq. yds. either of asph. or rein.-con.

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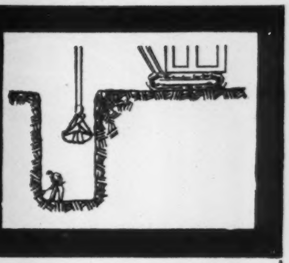

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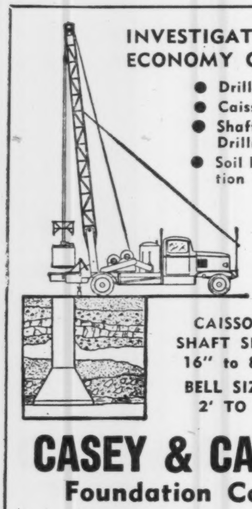

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BIDS ASKED—BUILDINGS

▲ † **N. M., Las Cruces**—SHOPS—B.A. About 8/21—U. S. Eng., P.O. Box 1538, 2107 E. Central Ave., Albuquerque, 80x140 ft. rigid frame, metal covered shop, incl. outside utilities, incl. water, sewer gas and aerial electrical work. at White Sands Proving Ground. Serial No. Eng 29-005-53-3. Plans deposit $100. CD 7/28, under LB.

Minn., Forest Lake—SCHOOLS—B.A. 8/26—Bd. Educ., Joint Independent School Dist. No. 104, H. M. Handrum, Clk., new grade school bldg., 46x68 ft. gymnasium, $500,000. W. M. Ingemann & Assoc., 345 Minnesota St., St. Paul, archts. CD 6/3.

▲† **N. M., Albuquerque**—OFFICERS QUARTERS—B.A. About 8/27—U. S. Eng., P.O. Box 1538, 2108 E. Centra lAve., one 2 story 32x190 ft. frame, masonry panel const. with stuccoed barracks bldg., const. small amounts of outside utilities, incl. water, sewer, gas, concrete sidewalks, double bit. surf. Sandia Base. Serial No. Eng 29-005-53-9. Plans deposit $100. CD 7/29, under Airports.

▲† **N. M., Wingate**—MAGAZINES, etc.—B.A. About 9/1—U. S. Eng., P.O. Box 1538, 2108 E. Central Ave., Albuquerque, four masonry bldgs. with total area of approx. 1,800 ft.; const. 76 mounded concrete arch magazines with additive alts. for 4 addnl. magazines; 12,000 tons hot mix for roads; 2,100 lin. ft. 15 to 60 in. in diameter concrete culvert; 14,000 lin. ft. 6 ft. high chain link fence, minor amounts of water, sewer and electrical services. at Wingate Ordnance Depot. Serial No. Eng 29-005-53-2. Plans deposit $125. CD 7/29.

SOON LETS CONTRACT—BUILDINGS

▲ **Ia., Dubuque**—DORMITORY—Mt. St. Bernard Seminary, Asbury Rd., Dubuque, soon lets contract dormitory, $1,200,000 J. J. Flad & Assocs., 908 W. Johnson St., Madison, Wis. archts. CD 3/20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul,

E. W. Coons, Inc., Hibbing, Minn., CA. **$762,831**, grading, concrete box culverts, gravel base, plant bit. surf. 20.2 mi. between Hibbing and Jct. TH 53, St. Louis Co. Bids July 18. CD 7/30 under LB.

† **Hagstrom Constr Co.**, 1567 Selby Ave., St. Paul, Minn., CA. **$864,107**, rehabilitation and addns. to BUILDING No. 576, Twin Cities Arsenal, Inv. 52-121, MINNEAPOLIS, MINN. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids June 26. CD 7/7 under LB.

▲ **H. B. C. Development Co.**, Home Buildings Corp., Sedalia, Mo., Owner Builds. Approx. **$2,250,000**. HOUSING, incl. 121 duplexes and 27 single family residences, RFD from KANSAS CITY, MO. CD 10/30/51.

† **Stanley H. Arkwright**, Billings, Mont., CA. **$566,035**. location of Soon R. R. lines and N. D. Hy. No. 23, near Sanish, Inv. 52-43, NORTH DAKOTA. U. S. Eng., Fort Lincoln, P. O. Box 300, Bismarck, N. D. Bids July 3.

† **Massman Const., Co.**, 20 W. 9 St., Kansas City, Mo. LB **$612,313**. constr. and repair dikes and revetment, Inv. 25-066-53-16. NEBRASKA, MISSOURI, IOWA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids July 26.

† **L. R. Foy Constr. Co.**, Hutchinson, Kan., CA. **$701,492**. rehabilitation of bldgs., Naval Air Field, HUTCHINSON, KAN. Ninth Naval Dist., Great Lakes, Ill. Bids June 25. CD 7/16 under LB.

Thompson, Haight & Keister, 2006 N. Portland St., Oklahoma City, Okla., LB **$558,149**, approx. 750 mi. telephone lines in and around Hereford, TEXAS. West Texas Telephone Corp., c/o E. C. Reinhauer, mgr., Hereford, Tex. Bids July 22. CD 6/30.

BUILDINGS

LOW BIDS AND CONTRACTS

J. E. Pyle, 325 Commercial Natl. Bank Bldg., Little Rock, Ark., LB **$432,059**, general const. HOSPITAL addn. MONETT, MO. St. Vincent's Hospital, Monett, MO. Bids July 15. CD 7/8.

▲ **Sioux Improvement Co.**, Sioux City, Ia., CA 137 HOUSES;
H. S. Haltz Constr. Co., 2121 E. 4 St., Sioux City, Ia., CA, 118 HOUSES;
Earl J. Fallon, 2301 West St., Sioux City, Ia., CA, 110 units;
W. A. Klinger, 201 Benson Bldg., Sioux City, Ia., CA, 105 HOUSES;
Home Constr. Co., 3400 Pierce St., Sioux City, Ia., CA, 77 units;
Sioux Homes Co., Sioux City, Ia., CA, 39 units;
Albert McMamara, 3715 7 Ave., Sioux City, Ia., CA, 6 units;
Walter J. Boyle, 210 Commerce Bldg., Sioux City, Ia., CA, 20 units;
H. Miller & F. Davenport, Sioux City, Ia., CA, 22 units;
Wm. Richard & F. Davenport, 1905 Douglas St., Sioux City, Ia., CA, 36 units;
Charles N. Woolery, 651 Security Bk. Bldg., Sergant Bluff, Ia., CA, 30 units. Total Est. **$7,000,000**, SIOUX CITY, IA. Federal Housing Admin. c/o H. R. McBride, Director, 222 Equitable Bldg., Des Moines, Ia.

A. H. Brodkey Co., 2311 Douglas St., Omaha, **Neb.,** Design and Construct. Approx. **$400,000.** 3 story off-street PARKING BLDG., one block long at 19 and Davenports Sts., OMAHA, NEB. Wm. Weiner, 110 Park Ave., Omaha, Neb.

Carl C. Wilson, Inc., City Natl. Bank Bldg., Omaha, Neb. Owner Builds. Approx. **$461,700,** HOUSING project at 40 and Blondo Sts., OMAHA, NEB.

Chalmers & Barton Const. Co., Hutchinson, Kan., CA. Approx. **$300,000.** GRAIN ELEVATOR, JETMORE, KAN. Dodge City Co-operative Exchange, Dodge City, Kan.

▲ **W. P. Atkinson,** East Plaza Bldg., Midwest City, Okla. Owner Builds. Approx. **$7,500,000.** RESIDENTIAL development, incl. ranch type homes, shopping enter, water and sewer facilities, concrete paved streets, MIDWEST CITY, OKLA. CD 7/29.

W. S. Bellows Constr. Co., 716 N. Everton St., Houston, Tex., CA. APPROX. **$100,000.** fabricating PLANT, CORPUS CHRISTI, TEX. Bellco Fabricators, Inc., 716 N. Everton St., Houston, Tex. CD 7/24.

J. A. Jones Constr. Co., 354 Aero Dr., Sheeveport, **La.,** CA, **$87,500.** WAREHOUSE, DALLAS, TEX. R. B. Williamson, Box 1123, Shreveport, La.

J. B. Dent, 2425 Ralph St., Houston, Tex., CA. **$281,-000.** FREIGHT TERMINAL, DALLAS, TEX. Express Freight Terminal Corp., 3908 Benson St., Dallas, Tex. CD 7/18.

B. F. Sturman, 204 Winkler Dr., Houston, Tex., Owner Builds. **$350,000.** 10 two-story masonry DWELLINGS, HOUSTON, TEX. CD 7/18.

Todd Shipyards Corp., Box 656, Galveston, Tex., rejected bids May 29, LOCKER ROOM bldg., LB **$90,-837,** Base Bid, **$89,085,** Alt. Bid. HOUSTON, TEX. CD 6/11 under LB.

Construction Engineering Co., 3908 S. Main St., Houston, Tex., CA. **$328,625,** 2 unit processing or steel machine SHOPS; **$169,000,** WAREHOUSE unit, HOUSTON, TEX. Standard Pipe Supply Co., 1801 Lyons St., Houston, Tex. CD 6/25.

Long Point Development Co., c/o Jim Leavell, 3517 Durhill St., Houston, Tex., Owner Builds. **$360,000.** Unit 1, 36 DWELLINGS, HOUSTON, TEX. CD 7/11.

▲ **Templeton & Cannon,** Central Natl. Bank Bldg., San Angelo, Tex., LB **$1,004,190,** general contract masonry, rein.-con., build up roof, CHURCH and education bldg., MIDLAND, TEX. First Baptist Church, c/o Steering Committee, W. Louisiana St., Midland, Tex. Bids July 24. CD 7/1.

FAR WEST

BIDS ASKED—BUILDINGS

† **Calif., Barstow**—IGLOOS, etc.—B.A. 8/15—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. igloos and hangar at Camp Irwin, ENG 04-353-53-100 $80,000. CD 11/13/51.

Calif., Claremont—DORMITORY—B.A. 8/18—Pomona College Claremont, 2 story, 30,000 sq. ft., rein.-con. dormitory, $300,000. Spaulding & Rex, 3305 Wilshire Blvd., Los Angeles, archts. CD 5/8/51.

▲ **Calif., Los Angeles**—HOSPITAL—B.A. 8/19—Veterans Admin., Munitions Bldg., Wash., D. C., Veterans Administration Hospital, Spec. 5200, Extended date. CD 5/21.

Calif., Hamilton Field—SCHOOL—B.A. 8/21—San Jose Elementary School District of Marin Co., Philip W. Schneider, supt., Hamilton, steel wood frame elementary school. Plans deposit $25. John Lyon Reid, 1069 Market St., San Francisco, archt.

Calif., Lawndale—SCHOOL—B.A. 8/21—Lawndale School District, 4110 E. 154 St., rein.-con. Rosecrans School $300,000. Plans deposit $25. H. L. Gogerty, 3123 W. 8 St., Los Angeles, archt.

Calif., Barstow—SCHOOL—B.A. 8/22—Barstow Union High School Dist, 405 N. 2 St., 1 Story, frame, stucco Henderson School, $300,000. Kistner, Wright, & Wright, 816 W. 5 St., Los Angeles, archts. CD 1/29.

▲ **Calif., Fresno**—SCHOOL—B.A. 8/28—Fresno City Unified School Dist., Edwin C. Kratt, Supt, Fresno, Sequoia Junior High School, Hamilton Ave. between 9 St. and Cedar Ave., $1,200,000. Plans deposit $100. Swartz & Myberg, Rowell Bldg., Fresno, archts. Extended date. CD 7/8.

Calif., Lawndale—SCHOOL—B.A. 8/28—Lawndale School District, 4110 W. 154 St., Compton Blvd. School $380,000. Plans deposit $25. H. L. Gogerty, 3123 W. 8 St., Los Angeles, Calif., archts.

Calif., Lawndale—SCHOOL—B.A. 8/28—Lawndale School District, 4110 W. 154 St., Compton Blvd. School $380,000. Plans deposit $25. H. L. Gogerty, 3123 W. 8 St., Los Angeles, Calif., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **IDAHO**—Bureau P. Rds. Dpt. Commerce, 609½ Bannock St., Boise, Idaho

Holmes Constr. Co., Heyburn, Idaho, LB, **$68,479** surf. 4.661 mi. Victor-Irwin Highway Proj. 34-C2 Teton Co. Bids July 24. CD 7/16.

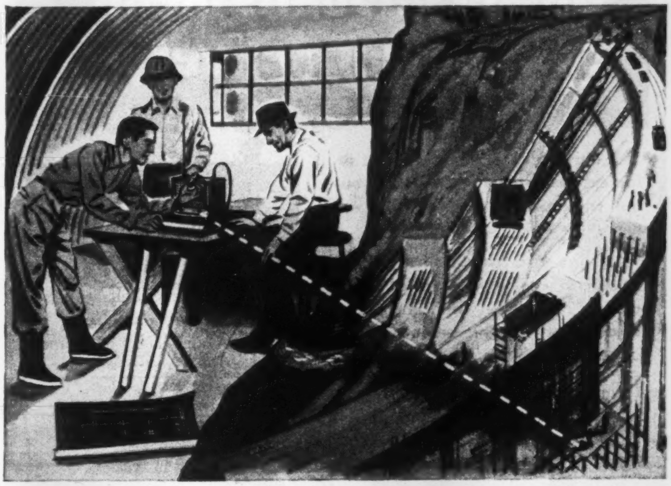
Commercial Builders, Moscow, Idaho, CA, **$95,347** filtration plant, OROFINO, IDAHO. City, City Hall, Orofino, Idaho. Bids July 24. CD 7/9.

ARIZONA—State Hy. Dpt., Phoenix

B. L. Gustafson, 1700 E. Campbell St., Phoenix, Ariz., LB, **$81,272,** paving 4 mi. section Florence-Florence Junction Highway, Pinal Co. Bids July 8. CD 6/25.

† **L. L. Driggs & T. A. Kvale,** 51 N. 1 Ave., Phoenix, Ariz., CA, **$79,711** repairs to railroad, Williams Air

BUILDERS "LINK BRAINS TO THE HANDS" WITH NEW 2-WAY PORTABLE RADIOPHONE



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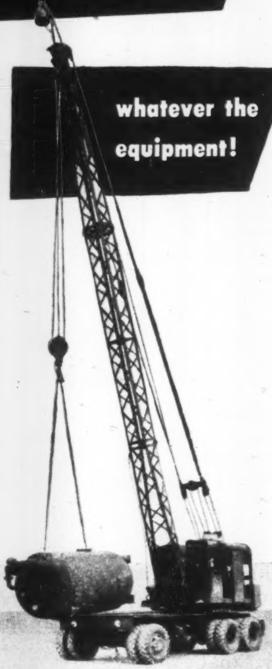

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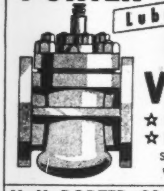

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Force Base, CHANDLER, ARIZ. Purch. & Contg. Office, Williams Air Force Base, Chandler, Ariz. CD 5/29/51.

Fisher Contg. Co., 2201 S. 19 St., Phoenix, Ariz., CA, **$313,925**, taxiways, lighting systems, for loading aprons, communication facilities, roads, sidewalks in airport area, PHOENIX, ARIZ. City Airport Auth., City Hall, Phoenix, Ariz. CD 11/29/46.

† **L. H. Hoffman**, 715 S. W. Columbia St., Portland, Ore., LB, **$124,170**, street and parking imprvs., RICHLAND, WASH. Atomic Energy Comn., 1901 Constitution Ave. N. W., Wash., D. C. CD 6/30, under Public Buildings.

† **General Electric Co.**, River Rd., Schenectady, N. Y. LB **$198,389**, Oregon and Washington shore fishway control equip. for McNary Dam, CIVENG 45-164-53-3. OREGON. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids July 25. CD 7/16.

† **W. D. Zavalis**, Oroville, Calif., LB **$177,400**. clear right of way 52 mi., Maupin-Detroit 300 kv line, No. 2, Wasco and Marion Counties. OREGON. Bonneville Power Admin., 827 N. E. Oregon St., Portland, Ore. Bids July 25. CD 7/16.

R. A. Schrader, 4030 S. E. Kelly St., Portland, Ore., CA. **$187,090**, salmon hatchery, Clatsop Co. OREGON. State Fish Comn., State Office Bldg., Portland, Ore. Awarded July 25.

† **Berkeley Steel Constr. Co.**, 1331 East Shore Blvd., Berkeley, Calif., LB, **$257,200**, eighteen 40x24 ft. radial gates for Nimbus Dam, Central Valley Proj. American River Div., Spec. DS 3744 CALIFORNIA Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo. Bids July 22. CD 6/27.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles,

E. L. Yeager Co., P. O. Box 87, Riverside, Calif. CA **$725,672**, road constr. 4.7 mi. between Rt. 64 and Nuebo Rd., Riverside Co. Bids July 10, awarded July 24. CD 7/22, under LB.

▲† **Stanton-Reed Co.**, 816 W. 5 St., Los Angeles, Calif., LB. **$1,105,530**, 3 story, rein.-con. B.O.Q. at Naval Air Station, NOY 71996, Spec. 32650. SAN DIEGO, CALIF. Dpt. Navy, San Diego, Calif. Bids July 1. CD 5/23.

▲ **Healy Tibbetts Constr. Co.**, Box 473, Long Beach, Calif., CA, **$1,873,052**, Marine Section, outfall sewer SANTA ANA, CALIF. Orange County Sanitation District 1104 W. 8 St., Santa Ana, Calif.

R. A. Wattson, 5528 Vineland Ave., North Hollywood, Calif., LB, **$636,570**, Land Section of new ocean outfall sewer, SANTA ANA, CALIF. Orange County Sanitation District, 1104 W. 8 St., Santa Ana, Calif. Bids July 23. CD 7/16.

▲ † **Del E. Webb Constr. Co.**, S 23 Ave., Phoenix, Ariz., CA, **$6,021,000**, 26 masonry bldg., 19 three story concrete dormitories, 5 masonry mess halls and administration bldgs., supply, ammunition, utilities bldg., etc. Spec. 1610 and 1625, TRAVIS AIR FORCE **BASE, CALIF. U. S. Eng.**, Wright Bldg., Sacramento, Calif. Bids **July 23.** CD 7/28, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **General Electric Co.**, River Road, Schenectady, N. Y., Aircraft Propulsion Project at Reactor Testing Station, ARCO, IDAHO, CA total cost, **$33,000,000.** Atomic Energy Comn., P.O. Box 1221, Idaho Falls, Idaho, **Parsons-Macco-Kiewit Co.**, 617 S. Olive St., Los Angeles, Calif., made preliminary design studies under subcontract with prime contractor. CD 3/24/49.

Robert Johnson Associates, 900 E. Elva St., Idaho Falls, Idaho, Day Labor, **$602,772**, 122 HOUSES, IDAHO FALLS, IDAHO. CD 7/15.

▲ **Cherf Bros.**, Ephrata, Wash., CA, **$7,000,000** SUGAR REFINERY, MOSE LAKE, WASH. Utah & Idaho Sugar Co., Benefiicial Life Bldg., Salt Lake City, Utah. **CD 2/29.**

▲ † **Dpt. Army**, Purch. & Contg. Officer, Fort Lawton, Seattle, Wash., rejected bids Feb. 29, rehabilitation 190 buildings at Fort Lawton, Inv. 52-22, SEATTLE, WASH., LB, **$1,259,000.** CD 3/7, under LB.

Bickford Constr. Co., 823 S. E. 28 St., Portland, Ore., CA **$619,700.** Mt. Tabor SCHOOL, PORTLAND, ORE. School Dist. No. 1, 631 N. E. Clackamas St., Portland, Ore. Bids July 23. Awarded July 28. CD 7/29 under LB.

R. G. Trigg, 5325 Atlantic Ave., Long Beach, Calif., CA, **$889,920**, 124 frame, stucco DWELLINGS on Regentview, Arthurdale, Carfax & Gardenald Sts., DOWNEY, CALIF. Thorson Homes, Inc., 5324 Atlantic Ave., Long Beach, Calif.

Trewhitt-Shields & Fisher, 926 Parallel St., Fresno, Calif., LB, **$523,300**, general contract AGRICULTURAL IMPROVEMENT PROGRAM, at Fresno State College, FRESNO, CALIF. State Div. Architecture P. Wks. Bldg., Sacramento, Calif. Bids July 22. CD 6/30.

Boyee Co., 451 Grunnell Ave., Claremont, Calif., Owner Builds, **$390,000**, 39 frame, stucco DWELLINGS on Kingsley, Brewster, Karech, and Caspar Ave., POMONA, CALIF.

King Constr. Co., Inc., 10024 S. Western Ave., Los Angeles, Calif., Owner Builds. **$486,000**, 54 frame, stucco DWELLINGS in REDONDO BEACH, CALIF. South Bay Engr. Co., Palos Verdes, Calif., engr.

▲ **A. L. Gindling**, 2960 Wilshire Blvd., Los Angeles, Calif., Owner Builds. **$1,136,000**, 142 frame, stucco DWELLINGS at Allard & Pioneer St., SANTA FE SPRINGS, CALIF. Southwest Drafting Service, 2724 W. Florence Ave., Los Angeles, Calif., archts.

Harold Roach Constr. Co., 607 N. Vermont St., Los Angeles, Calif., Owner Builds, WAREHOUSE, 11846 Sherman Way, North Hollywood, VAN NUYS, CALIF.

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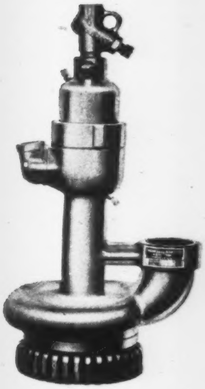

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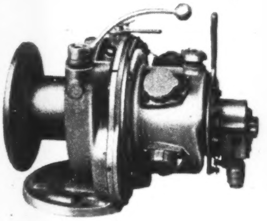

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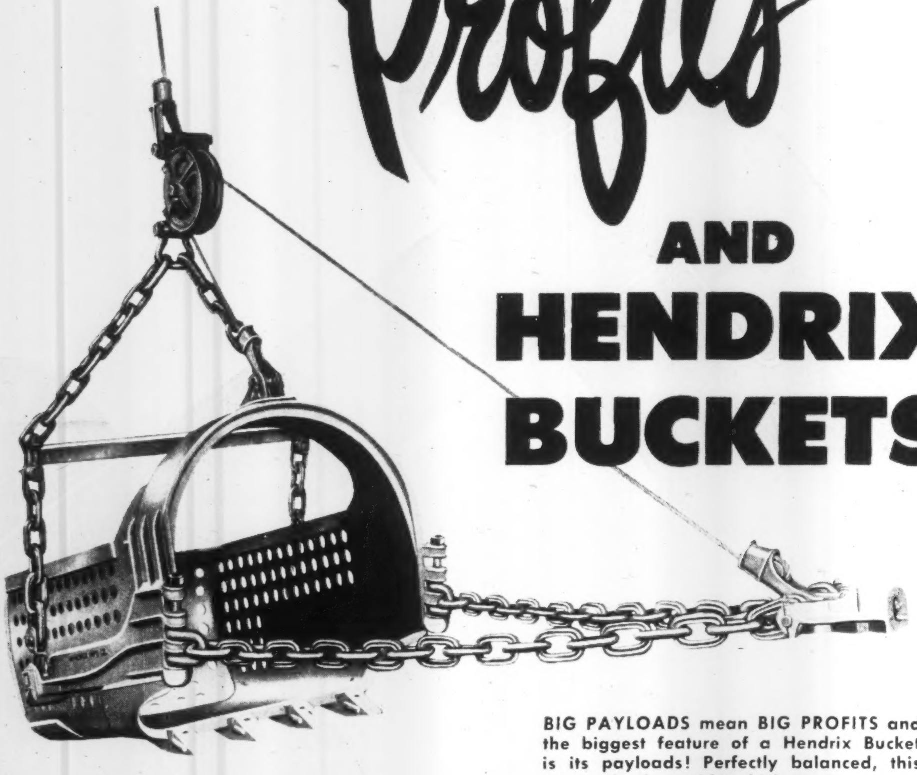

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—BUILDINGS

Mass., Lawrence—SCHOOL—B.A. 8/13—City, City Hall, school bounded by Providence, Milton and Butler Sts. Plans deposit $150. CD 2/26.

SOON LETS CONTRACT—BUILDINGS

▲ **Conn., New Haven**—PHYSICS LABORATORY—Yale University, Derby Ave., soon lets contract physics laboratory, Whitney Ave., Sachem and Prospect Sts., $5,000,000. Douglas Orr, 111 Whitney Ave., New Haven, archt. Meyer Strong & Jones, 101 Park Ave., N. Y., N. Y., mech. engrs. Henry A. Pfister, 111 Whitney Ave., New Haven, struc. engr. CD 6/12.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **B. Perini & Sons, Inc.**, 73 Montwait Ave., Framingham, Mass., LB Lot 1, **$3,015,840**, Lot 2, **$133,000**; Lot 3, **$95,096**; Lot 4, **$94,600** for family housing, at Presque Isle and Limestone Air Force Bases, PRESQUE ISLE and LIMESTONE, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids July 23. CD 7/8.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Gilbane Building Co., Inc.**, 90 Calvery St., Providence, R. I., CA, Est. **$3,600.000** HOUSING addn., Westover Field, CHICOPEE FALLS, MASS. Westover Development Corp. (Sponsor) 97A Exchange St., Portland, Me. Paul E. Atwood, 107 Court St., Bangor, Me., archt. CD 7/8, under CA.

▲ **George A. Fuller Co.**, 597 Madison Ave., New York, N. Y., CA, Est. **$4,500,000**, 455-room rein.-con., structural steel frame HOTEL, HARTFORD, CONN. Hotel Statler Co., Inc., 7 Ave. and 33 St., New York, N. Y. CD 7/17, under LB.

MIDDLE ATLANTIC

BIDS ASKED—BUILDINGS

N. Y., Brooklyn — HOUSING — B.A. 8/19 — New York City Housing Auth., 63 Park Row, New York, Zone 38, foundations and general constr., heating and ventilating, electrical work, plumbing, furnishing and erecting elevators, for Brevoort Houses, Proj. No. NY 5-17, Sect. I, incl. Bldgs. 1 to 6 (inclusive) and garage in area bounded generally by Marion St., Ralph Ave., Fulton St. and Patchen Ave., Brooklyn Boro. Plans deposit $75, $25 elevators. CD 2/2/51.

▲ **Pa., Ligonier**—HIGH SCHOOL—B.A. 8/15—School Dist., Ligonier Twp., Ligonier, 2 story 287x380 ft., irregular brick, block, Consolidated grade and Junior High School. $1,000,000. Robert J. Brocker, 201 Coulter Bldg., Greensburg, archt. CD 2/6.

SOON LETS CONTRACT—BUILDINGS

▲ **Pa., Pittsburgh**—SEMINARY, etc.—Pittsburgh Xenia Seminary, 616 W. North Ave., soon lets contract 1 and 2 story, bsmnt., brick, stone seminary, dormitories and admin. bldg. **$2,000,000.** Press C. Dowler, 130 7th St., Pittsburgh, archt. CD 4/13/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Holmes & Murphy, Inc., Bank St., Orchard Park, N. Y. LB. **$156,565**, est. $159,000. 1.95 mi. Alden Village S.H. 1065, Alden-Town Line S.H. 644, FA.RC. 52-72, Erie Co.;

Washbourne Constr. Corp., 18 E. 41 St., **& McLean Grove & Co., Inc.**, 70 E. 45 St., both New York, N. Y. LB. **$1,195,826,** est. $1,269,000. 1.55 mi. City of Watertown; Arsenal St. FA.C. 52-4, FAGC. 52-5, Jefferson Co.;

B. W. Husted, New Hartford, N. Y., LB. **$115,205,** est. $130,000. 1.85 mi. Peruville Relocation C. R. 107, FA. SS. 52-10, Tompkins Co.;

Hudson River Constr. Co., Inc., 75 State St., Albany, N. Y., LB. **$169,864,** est. $180,000. 3.37 mi. Tannersville-Haines Falls S.H. 1630, FA. RC 52-74, Greene Co.;

Camarco Contractors, Inc., State Rd., Carmel, N. Y. LB. **$143,195**, est. $145,000. 5.67 mi. Taconic State Parkway incl. Bear Mt. Parkway Spur, TSP. 52-1R, Putnam, Dutchess and Westchester Counties;

Daniel F. MacNamee & Co., Inc., 271 North Ave., New Rochelle, N. Y. LB. **$73,775,** est. $75,000, 1.81 mi. Croton Falls-Brewster, Pt. 2, S.H. 5438, Brewster Village, S.H. 5098, FA. RC. 52-71, Putnam Co.;

cancelled bids to have been opened July 24, 4.41 mi. Scotia-Saratoga County Line, Pt. 2, S.H. 1609, FA. RC. 52-75, Schenectady Co., est. **$142,000**; 0.8 mi. Brooklyn-Queens Expressway (Cont. 16), FA. BQE, 5201, King Co.—Demolition.

received no bids July 24, FA.C. 52-8P, FA. C. 52-9, FA. GC. 52-10, Ontario Co.; FA. C. 52-7, Erie Co. CD 7/2.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Bethlehem Steel Co., E. 3 St., Bethlehem, Pa., LB **$1,572,957**, est. $1,587,135, Johnson City-Rte 17 connection, FA.SH. 50-13 (Johnson City Bridge Proj., Cont. 3), 0.37 mi. FA. SH 52-9, Broome Co. Bids July 24. CD 7/2.

▲ **Charles F. Vachris, Inc.**, 9024 Ditmas Ave., Brooklyn 36, N. Y. LB **$2,150,975**, Cont. N. LP-1, construct northbound pavement of Laurelton Parkway from Southern State Parkway to South Conduit Ave., Queens Boro, **NEW YORK.** Triborough Bridge & Tunnel Auth., Administration Bldg., Randalls Island, New York 35, N. Y. Bids July 22. CD 6/25.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

Frank Mashuda Co., Gibsonia, Pa., CA. **$2,063,396,** crushed aggregate base with bit. surf. 24 to 50 ft. wide, 3.09 mi. four rein.-con. structures, service roads and ramps; two I-beam bridges and deck plate girder bridge, one over Ingomar Rd., one over Pine Creek and the other over U. S. 19, Leg. Rt. 246, McKnight Road Exten. from northern end of present McKnight Rd. to Perry Hy. U. S. 19 at Pine Creek, Allegeny Co. Bids July 11. CD 7/16, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Walter Butler Constr. Co.**, 4 and Cedar Sts., St. Paul, Minn., CA. Approx. **$1,000,000.** 4 story bsmnt, 40x242 ft., brick, tile St. Joseph's INFIRMARY, 37x74 ft. wing, 26x30 ft., boiler room, steel frame, brick, tile const., GREENSBURG, PA. Sisters of Charity, Seton Hill College, Greensburg, Pa. Curtis E. Haley, 2319 Ponce de Leon Blvd., Coral Gables, Fla., archt.

▲ **Ritter Bros.**, 1511 N. Cameron St., Harrisburg, Pa., CA, 300,000 sq. ft. PLANT and OFFICE to mfg. prefabricated military buildings;

American Bridge Div., U. S. Steel, Frick Bldg., Pittsburgh, Pa. CA, steel for same SHIREMANSTOWN, PA. Gunnison Homes, Inc., New Albany, Ind. (Sub. of United States Steel Corp.). Est. **$5,000,000.** Bids June 4. CD 6/2.

▲† **Standard Constr. Co., Inc.**, 1010 Vermont Ave. N. W., Wash., D. C., CA **$1,996,787** constr. Richardson Dwellings HOUSING Project DC 1-17 Clay St. and 53 St. N.E., Wash. ,D. C. National Capitol Housing Auth., 1728 L Sts. N.W., Wash., D.C. Bids June 17. CD 6/19, under LB.

SOUTH

BIDS ASKED—BUILDINGS

▲ **Tenn., Manchester**—HOSPITAL—B.A. 8/19—Coffee Co., Manchester, hospital. $1,000,000. Extended date. Bianculli, Palm & Purnell, 501 Cherry St., Chattanooga, archts. CD 5/27.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Virginia Engr. Co. Inc.**, 80 29th St., Newport News, Va., LB **$2,013,000.** aircraft maintenance hangar, Naval Air Station, Noy 71307, OCEANA, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids July 24. W. W. Slocum & Co., 744 Broad St., Newark, N. J. engr.

▲† **R. H. Wright & Son, Inc.**, 1058 N.E. Fifth Terrace, Ft. Lauderdale, Fla., CA, **$1,263,000,** plane parking apron, L.T.A., mooring facilities, taxiway lighting system, Naval Air Station, Boca Chica Field, NOY 71516 KEY WEST, FLA. dist. P. Wks. Office, U. S. Naval Base, Charleston, S. C. Bids July 9. CD 7/15, under LB.

▲† **Fred Howland, Inc.**, 1451 N.W. 20 St., Miami, Fla., CA, **$1,624,642,** U. S. Fleet Sonar School, NOY 70699, Spec, 32234, KEY WEST, FLA. Dist. P. Wks. Office, U. S. Naval Base, Charleston, S. C. Bids July 16, CD 7/2, under LB.

▲† **Ray Constr. Co.**, Mobile Hy., Pensacola, Fla., CA **$1,226,300,** Dannelly Field imprvs., MONTGOMERY, ALA. Alabama Natl. Guard Bureau, State Capitol, Montgomery, Ala. Bids June 23. CD 7/8, under LB.

▲ **LOUISIANA**—State Hy. Dpt., Hy. Office Bldg., Baton Rouge,

Allied Structural Steel Co., 20 N. Wacker Dr., Chicago, Ill., CA, **$1,287,062,** bridge superstructure consisting five 75 ft. I-beam, one 75-ft. I-beam span, five 360 ft. high steel fixed spans one 75 ft. I-beam span, ten 75-I-beam spans Red River at Millers' Bluff on Plain Dealing-Hosston Hy., State Rt. 109, SP 83-03-07. F. A. Secondary Proj. S-147 (3), Caddo and Bossier Parishes. Bids June 25. CD 7/2, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Daniel Cnostr. Co.**, 429 Main St., Greenville, S. C. CA. **$1,900,000.** POWER PLANT, superstructure, mechanical equip. etc., MONCKS CORNER, S. C. South Carolina Public Service Auth., Moncks Corner, S. C. Bids June 24. CD 7/1, under LB.

▲ **Consolidated Engr. Co.**, 20 E. Franklin St., Baltimore, Md., CA. **$1,500,000,** superphosphate PLANT, LAKELAND, FLA. Davison Chemical Corp., Dpt. 7, Baltimore, 3, Md.

▲ **Taylor Constr. Co.**, 2875 N. LeJeune Rd., Miami, Fla., CA. **$1,200,000**, 10 story, ocean front HOTEL, MIAMI, FLA. Marlin Inc., 10179 Collina Ave., Bal Harbour Village, Fla. Roy F. France & Son, 1620 West Ave., Miami Beach, Fla., archts.

▲ **Mid-Valley Utility Constr. Co.**, P.O. Box 900, Lake Charles, La., CA. **$3,000,000.** PLANT ADDNS., LAKE CHARLES, LA. Columbia-Southern Chemical Corp., sub. Pittsburgh Plant Glass Co., 5 Ave. Bellefield St., Pittsburgh, 13, Pa.

† **M. T. Reed Constr. Co.**, P.O. Box 1033, Jackson, Miss. CA. **$776,590,** MODEL INSTALLATION bldg. at Arnold Engineering Development Center, TULLAHOMA ,TENN. U. S. Eng., Tullahoma, Tenn. CD 7/28, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Overland Constr. Co.,** 205 W. Wacker Dr., Chicago 6, Ill., LB, **$1,657,329,** superstructure; LB, **$989,250,** substructure for bascule bridge Halsted St. over North Branch of Chicago River, CHICAGO, ILL, City, City Hall, Chicago, Ill. Bids July 21. CD 7/2.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Geo. A. Fuller Co.,** 111 W. Washington Ave., Chicago 2, Ill. CA, Total Est., **$40,000,000,** foundation, sinking of caissons and other substructure work for 41 story, OFFICE bldg. at Randolph and Beubien Court, CHICAGO, ILL. Prudential Life Insurance Co., 763 Broad St., Newark, N. J. Naess & Murphy, 80 E. Jackson Blvd., Chicago 4, Ill., archts. Bids July 15, awarded July 21. CD 6/30.

▲† **Engineering Constr. Co.,** 173 W. Madison St., Chicago 3, Ill., CA, **$1,479,717,** 3 story 240x240 ft., steel brick, concrete, gunners mate service SCHOOL, GREAT LAKES, ILL. Ninth Naval Dist., Great Lakes Naval Training Station, Great Lakes, Ill. Awarded July 22. CD 7/18, under LB.

▲ **Selmer Co.,** 128 N. Pearl St., Green Bay, Wis., LB, **$1,448,916,** general contract 1 story 360x740 ft., WAREHOUSE at Ashwaubenon, GREEN BAY, WIS. Red Owl Stores, Inc., Hopkins, Minn. Bids July 22. CD 7/23.

WEST OF MISSISSIPPI

BIDS ASKED—BUILDINGS

▲ **Tex., Lubbock**—HOUSING—B.A. 8/28—U. S. Eng., Box 1538, Albuquerque, N. M., construct, manage, finance, 418 unit Housing proj. $3,762,000; Plans deposit $50; water sys., $60,000; sanitary sewers, $90,000; streets, $90,000; gas sys., $85,000; electric distr. sys., $75,000 for Reese Air Force Base, Serial No. Eng. 29-005-53-8. Extended date. CD 7/15.

▲ **Tex., Baytown**—PLANT, etc.—Bids Asked—Humble Oil & Refining Co., Baytown, propane deasphalting plant, $5,000,000; storage for products of deasphalting plant, $500,000. CD 7/18.

▲ **Tex., Dallas**—DEPARTMENT STORE—Bids Asked—Titche-Goettinger Co., Elm and St. Paul Sts., 7 story department store, Approx. $1,500,000. Jameson & Merrill, 820 N. Harwood St., archts. CD 1/7/48.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **H. B. Zachry Co.,** Box 2570, San Antonio, Tex., LB **$1,367,272,** raw water conduit, FORT WORTH, TEX. City, City Hall, Fort Worth, Tex. Bids July 26. CD 7/1.

▲ **Brown & Root, Inc.,** Box 3, Houston, Tex., LB **$3,222,542,** San Jacinto Canal Work, HOUSTON, TEX. City, City Hall, 900 Brazos St., Houston, Tex., Bids July 23. CD 7/15.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **F. A. Hunter,** 3015 Wroxton St., Houston, Tex., CA **$1,362,000,** 75 two-bedroom HOUSING units; 15 three-bedroom housing units; 50 two-bedroom housing units; 35 three-bedroom housing units, incl. garages, underground utilities. DEL RIO, TEX. Federal Housing Admin., 610 S. Flores St., San Antonio, Tex. CD 4/1.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ † **Oregon**—B.A. 10/1—U. S. Eng., Pittock Block, Portland, power house, Lookout Point Dam, Lane Co. Civeng 35-026-53-20. $4,000,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Union Pacific R. R. Co.,** W. C. Perkins, ch. engr., 1416 Dodge St., Omaha, Nebr., Owner Builds, $4,800,000, semaphore signals will be replaced by color light signals and passing tracks will be extended at 17 communities along 309 mi. railroad track IDAHO AND OREGON.

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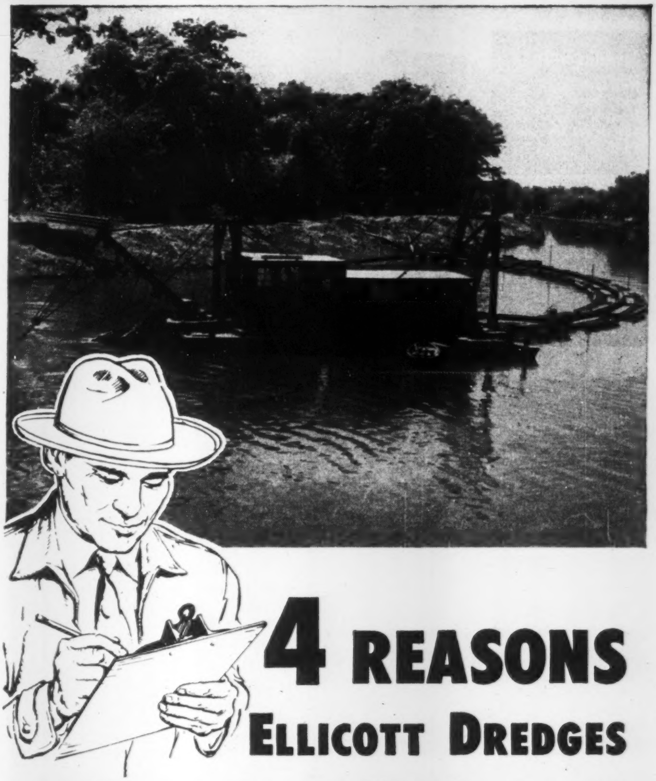

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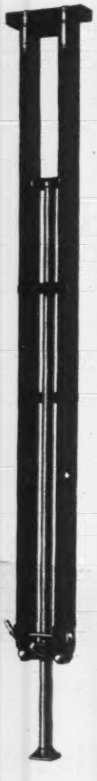

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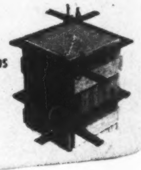

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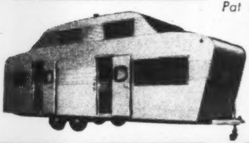

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- ▲† **Parker-Schram Co.**, Builders Exchange Bldg., Portland, Ore., LB **$1,113,682**, Schedule 1; LB **$1,030,309**, Schedule 2, clear and construc Big Eddy-Troutdale 300 kv line, Wasco, Hood River, Clackamas and Multnomah Counties, OREGON. Bonneville Power Admin., 827 H. E. Oregon St., Portland, Ore. Bids July 22.
- ▲ **Kaiser Engineers**, 1924 Broadway, Oakland, Calif., CA, expansion of Hanford Plutonium Works, RICHLAND, WASH. For the Atomic Energy Comn., 1901 Constitution Ave. N. W., Wash., 25, D. C. Vitro Corp. of America, 2331 Broadway, New York, N. Y., Charles T. Main, Inc., 80 Federal St., Boston, Mass.. engr. General Electric Co., River Rd., Schenectady, N. Y., operating contractor, will furnish basic engineering design.
- ▲† **William P. Neil Co. Ltd.**, 4814 Loma Vista St., Los Angeles, Calif., LB, **$1,080,978**, rein.-con. Public Works bldg. and rein.-con. metal trades bldg., El Toro Marine Corp Air Station, NOY 71129, Spec. 32683, EL TORO, CALIF. Dpt. Navy, San Diego, Calif. Bids July 22. CD 6/17.

BUILDINGS

LOW BIDS AND CONTRACTS

- ▲ **D. O. Norton & Son**, 3002 N. 26 St., Pheonix, Ariz., CA, **$1,176,494**, est. $1,200,000, rehabilitation and Yuma High SCHOOL ADDNS., YUMA, ARIZ. Yuma Union High School Dist., Yuma, Ariz. Bids May 19. Awarded June 10. CD 5/29, under LB.
- ▲† **Ralph & Horwitz**, 1835 N. Flint St., Portland, Ore., LB **$2,372,634**. 7 story OFFICE for occupancy by Bonneville Power Admin., PORTLAND, ORE. Lloyd Corp., 720 N. E. 12 St., Portland, Ore., Bids July 22. CD 7/8.
- ▲ **Baruch Corp.**, 321 S. San Vicente Blvd., Los Angeles, Calif., CA, **$1,220,000**. Post POLIO HOSPITAL, LOS ANGELES, CALIF. Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids July 15, awarded July 22. CD 7/22, under LB.

ALASKA

BIDS ASKED—BUILDINGS

- ▲ **Alaska, Anchorage**—HIGH SCHOOL—B. A. 9/4—School Dist., Anchorage, rein.-con. high school. $2,250,000. Plans deposit $50. Manley & Mayer, 210 Loussac-Sogn Bldg., archts. CD 7/1.

CANADA

BUILDINGS

LOW BIDS AND CONTRACTS

- ▲ **Anglin-Norcross Ontario Ltd.**, 57 Bloor St., W., Toronto, Ont., CA, Approx. **$3,000,000**, 15 story OFFICE on Adelaide St. W., between Yonge & Bay Sts. 3 story below ground parking station, TORONTO, ONT. Owner c/o Wood Fleming & Co. Ltd., Royal Bank Bldg., Toronto, Ont. E. L. Sheppard, 57 Queen St. W., Toronto, Ont., archt.
- ▲ **Anglin-Norcross Quebec Ltd.**, 892 Sherbrooke St. W., Montreal, Que., CA, **$1,000,000**, 2 story, bsmnt. PLANT and OFFICE, 1 story, 170x170 ft. PARTS and STORAGE DEPOT, 125x1361 ft. REPAIRS and WAREHOUSE section, Cote de Liesse Rd., MONTREAL, QUE. Charles Cusson Ltd., 284 Ontario St., W., Montreal, Que. G. Gagnier, 1449 Crescent St., Montreal, Que., archt. CD 2/11/49.
- ▲ **Superior Homes Reg'd**, 484 McGill St., Montreal, Que., Owner Builds, **$2,500,000**, initial 20 units of 200 cottage HOUSING DEVELOPMENT at Cote Vertu, ST. LAURENT, QUE.

AMERICANS ABROAD

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

- ▲ **Worthington Corp.**, Worthington Ave., Harrison, N. J., U. S. A. Approx. **$2,000,000**. pipe, pumps, accessories for Negev Desert Reclamation Project, Yarkon River, TEL AVIV., ISRAEL, for the Mekoroth Water Co., c/o Jewish Agency for Palestine, 16 E. 66 St., New York, N. Y., U. S. A.

Proposed Projects

WATER SUPPLY

- ▲ **Ga., Atlanta**—City Waterworks Dpt., City Hall, 20 m.g.d. filter plant at Chattachoochee River Pumping Station, **$2,500,000**. CD 1/11.
- ▲ **Tex., Lubbock**—City, City Hall, water field, 52,000 acre tract land for drilling several water supply wells, pumping unit, enlarging water treatment plant and storage, 70 mi. pipe line to city limits. **$14,000,000**. R. L. Oldham, city engr.
- ▲ **Tex., Midland**—City, WW imprv., 10 wells, two 2 m. g. concrete reservoirs, elevated water storage, 33 in. steel, concrete water main, 44,000 lin. ft. from wells to city. **$13,100,000**. H. N. Roberts, Lubbock, consult. engr. CD 2/13.

SEWERS, WASTE DISPOSAL

Ill., Springfield—City, City Hall, $975,000 bond election Aug. 12, imprvt. and repair sewers. CD 2/11/49.

▲ **Ind., Evansville**—Bd. P. Wks., City Hall, Div. 1 on $3,684,000 sewer program, 12- to 20-in. diam. West Side Main Sewer, **$1,056,600**. Alvord, Burdick & Howson, 1401 Civic Opera Bldg., Chicago, Ill., consult. engrs. CD 6/16/49.

BRIDGES

▲ **DELAWARE**—State Hy. Dpt., Dover,

New Castle Co.—bascule type-lift bridge over Christina River, at Walnut St. Wilmington, **$4,000,000**. Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York, 6, N. Y. consult. engrs.

▲ **KENTUCKY and INDIANA**—Commonwealth of Ky., Frankfort, and State of Indiana Hy. Comn., State House, Annex, Indianapolis 4, Ind.

Hancock Co., Ky.—bridge connecting Hawesville, Ky., and Tell City, Ind. **$2,500,000**.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh,

Cumberland Co.—bridge, U. S. 301 across Cape Fear River and connection with Rowan St. in Fayetteville, **$1,000,000**.

Haywood Co.—supplement for proposed Pigeon River Proj., **$1,000,000**.

▲ **WASHINGTON**—Washington Toll Bridge Auth., Olympia,

Tacoma—bridge over Hale's Passage to connect Fox Island with mainland. $1,000,000. C. E. Andrew, ch. consult. engr. CD 10/13/50, under Tacoma, Wash.

STREETS AND ROADS

▲ **Ga., Atlanta**—City and Fulton Co., City Hall, voted **$12,700,000** bonds, completing Expressway. CD 5/20.

▲ **Md., Baltimore**—City, Bureau Hys., 303 Municipal Bldg., Baltimore, Zone, 2, Jones Falls Valley Expressway, **$33,000,000**. J. E. Greiner Co., 1201 St. Paul St., Whitman, Requardt & Assoc., 1304 St. Paul St., Rummel, Klenner & Kahl, 1021 N. Calvert St. and Wilson T. Ballard, 116 E. Preston St., Baltimore, engrs. CD 12/27/44.

▲ **Tex., Lubbock**—Lubbock Co., Court House, base and surf. of farm to market roads, **$750,000**; road grading and structures, **$350,000**. CD 6/24/46.

EARTHWORK, WATERWAYS

Miss., Biloxi—City, City Hall, sea wall, **$500,000**.

▲ **Wash., Concrete**—Puget Sound Power & Light Co., Stuart Bldg., Seattle, Zone 1, enlarging Baker River power plant, near here, **$9,000,000** Stone & Webster Eng. Corp., 49 Federal St., Boston, Mass. consult. engrs. CD 7/10.

▲ **Wash., Electron**—Puget Sound Power & Light Co., Stuart Bldg., Seattle, Zone 1, White River power plant addn., **$9,000,000**. Stone & Webster Eng. Corp., 49 Federal St., Boston, Mass., consult. engrs. CD 7/10.

LATIN AMERICA

▲ **Brazil, Sao Paulo**—State of Sao Paulo, investigate sewage handling and industrial wastes disposal and project plans for sewage treatment works. **$25,000,000**. Greeley & Hanson, 220 S. State St., Chicago 3, Ill., U. S. A., consult. engrs.

AMERICANS ABROAD

▲ **Australia**—REFINERY—Shell Co. of Australia, Ltd., Melbourne, 24,000 bbl. daily capacity refinery, **$11,000,000**; refinery products storage and crude storage of 1,570,000 bbls., **$750,000** both at Geelong. CD 5/18/51.

PUBLIC BUILDINGS

Calif., Fresno—ARMORY—State Div. Architecture, P. Wks. Bldg., Sacramento, armory, **$533,500**. CD 10/11/49.

▲ **Calif., Los Angeles**—SCHOOLS—Los Angeles City School Dist., 1425 S. San Pedro St., plans by A. S. Nibecker, Jr., c/o owner, Richland Junior High School, **$2,445,000**; Herrick Elementary School, **$462,000**; Walgrove Elementary School, **$457,000**; Hubbard Street School, **$400,000**. CD 6/13.

▲ **Calif., Los Angeles**—OFFICE, etc.—University of California, 405 Hilgard Ave., plans by Austin, Field & Fry, 2311 W. 3 St., Los Angeles, general office and classroom bldg., **$1,750,000**; plans by Stanton & Stockwell, 627 S. Carondelet St., physical sciences bldg., **$1,700,000**; plans by Welton Beckett & Assoc., 5657 Wilshire Blvd. music bldg., **$1,500,000**.

▲ **Conn., Danbury**—HOUSING—City Housing Auth., Joseph E. Canale, Jr., chn., plans by Holden-McLaughlin & Assoc., 570 Lexington Ave., New York, N. Y., low-rent garden apartments, Roosevelt and W. Wooster Sts. **$1,500,000**.

▲ **Ga., Decatur**—HOSPITAL—De Kalb Co., Court House, plans by Bothwell & Nash, 208 Roswell St., Marietta, hospital, **$1,000,000**. CD 4/14.

Idaho, Pocatello—TRADE and INDUSTRIAL—Idaho State College, Pocatello, trade and industrial bldg. **$800,000**.

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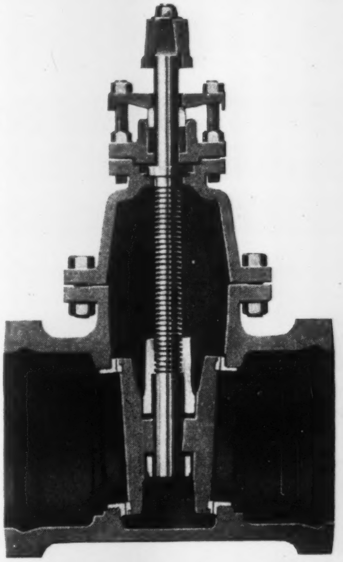

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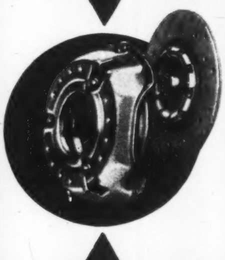

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▲ **Md., Baltimore**—HOUSING—Baltimore Housing Auth., 709 E. Eager St., plans by Taylor & Fischer, 1012 N. Calvert St., (second unit) 362 units on Cherry Hill Housing Extension, **$3,982,000.** Egli & Gompf, Inc., 1019 N. Calvert St., Baltimore, mech, engr. Philip Darling, 709 E. Eager St., dir. of Dev. CD 5/21/45.

Md., College Park—STUDENT UNION—University of Maryland, College Park, plans by Ross & Walton, 3510 Rhode Island Ave. N.W., Wash., D. C., student union bldg. **$700,000.** CD 7/14/49.

Mich., Warren—HIGH SCHOOL—Warren Twp. School Dist. 2, Warren, voted bonds, 2 story, bsmnt., brick, steel high school. **$995,000.**

▲ Minn., **Minneapolis**—HOUSING—Minneapolis Housing & Redevelopment Auth., A. C. Godward, exec. dir., Metropolitan Life Bldg., about 260 unit low-rent housing, west site, bounded by Glenwood and Fifth Aves. North and Dupont and Girars Aves. **$3,000,000.** CD 1/11/51.

▲ N. J., **Hackensack**—ARMORY—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., plans by Wright & Ferriss, Basking Ridge, N. J., ORC armory. **$500,000-$1,000,000.** CD 1/11/51.

▲† N. J., **Newark**—ARMORY—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., plans by A. Davis & Son, 30 Journal Square, Jersey City, ORC armory. **$500,000-$1,000,000.** CD 1/11/51.

▲ N. Y., **Brooklyn**—SCHOOL—Bd. Educ., 49 Flatbush Ave. exten., Zone 1, plans by Kelly & Gruzen, 30 Fifth Ave., New York, Zone 3,, Proj. E 646, Brooklyn High School, 35 Ave. tract at Rutland Rd., Kingston Ave. and Winthrop St. **$6,000,000.**

▲† N. Y., **Romulus**—DEPOT FACILITIES—U. S. Eng., 80 Lafayette St., New York, Zone 13, plans by John C. Ehrlich, Geneva, depot facilities at Seneca Ordnance Depot. **$500,000-$1,000,000.**

▲ O., **Dayton**—COURTHOUSE, etc.—Montgomery Co., Bd. Comn., Court House, bond election Nov. 4, court house and juvenile center on tract bounded by Second, Third, Perry and St. Mary's Sts. **$6,500,000.** CD 11/12.

▲ O., **Marion**—HOSPITAL—Bd. Hospital Comrs. Court House, $350,000 bond election November 4, city-county hospital. **$2,850,000.** CD 4/11.

▲ Tex., **Austin**—HOSPITAL—City, City Hall, plans by C. H. Page & Son, 305 W. 11 St., Niggli & Gustafson, 4303 Avenue F; Kuehne, Brooks & Barr, Perry Brooks Bldg., hospital addn. **$2,200,000.** CD 8/12/48.

▲ **Tex., Corpus Christi**—SCHOOLS—Corpus Christi Independent School Dist., 515 N. Carancahua St., plans by Walter Wiznia, 1111 Buford St., Central or North Beach School enlargement, **$300,000;** plans by Dexter Hamon, 912 Ocean Dr., Driscoll School unit and gymnasium, **$400,000;** plans by E. E. Hamon, 715 S. Tancahua St., remodeling, enlarging Cliffside School, McArdle Rd. and Carroll Lane, **$350,000;** plans by C. P. Donnelly, Hackley Bldg., elementary school, Ebony Acres, Gollibar and Prescott Sts., **$365,000.** CD 6/23.

▲ **Tex., Houston**—SCHOOLS—Houston Independent School Dist., 1600 Washington St., Senior High School, Bellaire Sec. **$1,000,000;** Junior-High School, Bellfort and Chaffin Sts. in East End, **$650,000;** Negro Junior High School, Yates School Expansion, Hempstead Rd., **$1,100,000;** Junior High School in Bellaire area, **$1,200,000;** combination Senior-Junior High School (Negroes) northern sect. of city, **$750,000;** Senior High School Burbank area, **$850,000;** Junior-High School, Kelly and Hirsh Rds., **$770,000;** Junior High School, Denver Harbor area, **$950,000.** CD 6/23/47.

▲ Wash., **Seattle**—SCHOOLS—Highline School District 401 253 S. 152 St., plans by Waldron & Deitz, Hoge Bldg., Zone 4, Normandy Park Elementary School, **$350,000;** plans by Steinhart & Stanley, Medical Arts Bldg., Seattle, Zone 4, Junior High School, **$900,000;** Beverly Park School addns., **$280,000;** Shorewood School addn., **$210,000.** CD 6/30.

▲ Ont., **Ottawa**—HOSPITAL—Dpt. P. Wks., Hunter Bldg., plans by E. A. Gardner, c/o owner, 100-bed military hospital. **$2,000.000.**

COMMERCIAL BUILDINGS

▲ D. C., **Wash.**—HOSPITAL, etc.—Sibley Hospital, 1140 North Capitol St., plans by L. Justement, 2011 K St. N. W., 348-bed hospital and home for nurses, **$9,382,000.**

▲ **Ill., Norridge**—SHOPPING CENTER—Schoenlank & Kircher, 1515 W. Morse St., Chicago, plans by Sidney Morris & Assocs., 134 N. La Salle St., Chicago, Zone 2, shopping center on 20-acre, etc., Harlem Ave. and Forest Preserve Dr. **$5,000,000.**

▲ **Ill., Wilmette**—HOMES—Irving A. Blietz, 8905 E. Prairie St., Skokie, 80 homes in area of Laurel, Linden, 3 and 4 Aves., **$1,200,000.**

▲ **La., New Orleans**—SHOPPING CENTER—W. H. Crawford, 2019 N. Third St., Baton Rouge, plans by Ketchum, Gina & Sharp, 227 E. 44 St., New York, N. Y. and J. Wesley Leake, c/o owner, Gentilly Woods Shopping Center, **$5,000,000.** CD 6/16.

▲ **Tex., San Antonio**—HOSPITAL—Santa Rosa Hospital, W. Houston and Santa Rosa Sts., plans by Phelps & DeWees & Simmons, 1501-6 Majestic Bldg., 5 story hospital addn., air-conditioning, soundproofed. **$2,000,000.** Wm. R. O'Connell, 305 Perry-Brooks Bldg., Austin, consult. engr. CD 11/20/51.

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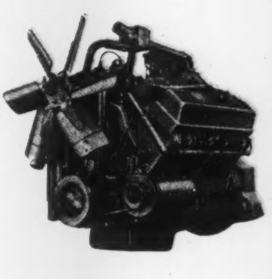

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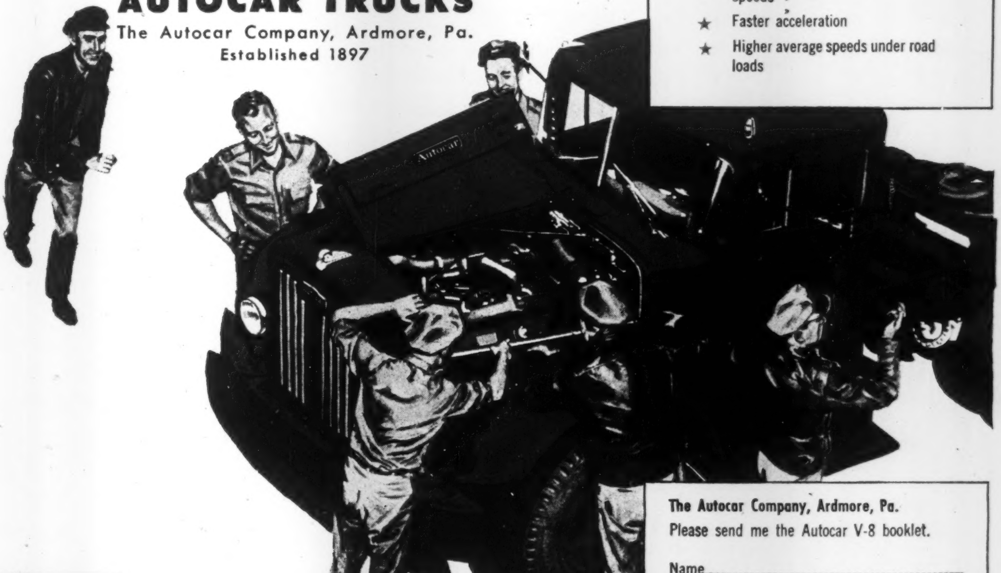

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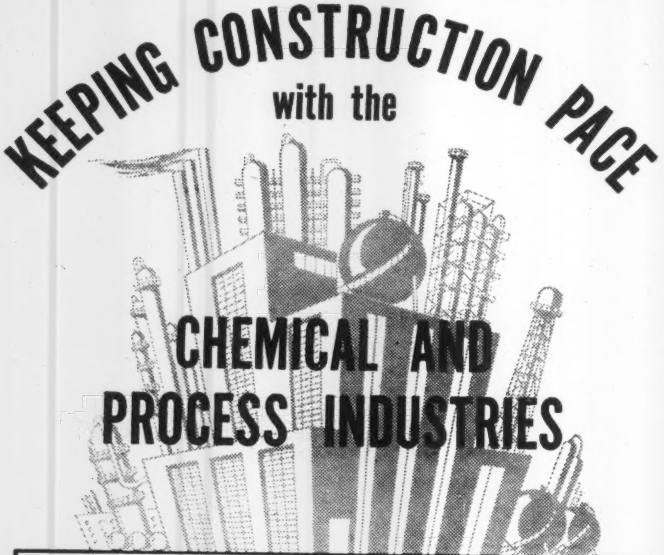
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▲ **Va., Chincoteague**—HOUSING—Dpt. Navy, 5th Naval Dist., Norfolk, plans by Sturgeon, Clark & Buhr, engrs.-archts., Midtown Bldg., Wards Corner, Norfolk; construct, manage, finance, housing units, Naval Auxiliary Air Station. **$2,200,000.**

▲ **Wash., Spokane**—DEPARTMENT STORE—W. T. Grant Co., 1441 Broadway, New York, N. Y., department store. **$1,000,000.**

INDUSTRIAL BUILDINGS

▲ **Ark., Mena**—PLANT—Inland Mining Co., c/o Southwestern Eng. Co., 4800 S. Santa Fe St., Vernon, Calif., manganese plant, Approx. **$1,000,000.**

▲ **Ill., Danville**—POWER PLANT—Illinois Power Co. 134 E. Main St., Decatur, power plant, near here **$3,000,000.** Sargent & Lundy, 140 S. Dearborn St., Chicago, Zone 3, consult. engrs.

▲ **Mo., Manchester**—SHOPPING and BUSINESS CENTER—Glyn Cagny Community, c/o C. B. Todd, Inc., 11½ West Big Bend, St. Louis, Zone 22, shopping and business center, 300 to 500 residences, community house, motion picture theatre, large restaurant, swimming pool and bathhouse, 5-acre children's park and chapel, Manchester Rd. vicinity of Carmen Rd. Approx. **$5,000,000.**

▲ **N. C., Wilmington**—GENERATOR PLANT—Carolina Power & Light Co., Insurance Bldg., Raleigh, electric generator plant on east bank of Cape Fear River. **$17,500,000.**

▲ **Okla., Ponca City**—PLANT—Continental Oil Co., Ponca City, plant to mfg. detergent addns. for lubricating oils. **$2,000,000.** H. G. Osborne, c/o owner, engr.

UNCLASSIFIED

▲ **Arizona and California**—BOOSTER and COMPRESSOR STATIONS, etc.—Pacific Gas & Electric Co., 445 Sutter St., San Francisco, Calif., 153,000 hp. in booster and compress stations, between Topock and Milpitas, **$15,600,000;** 86 mi. loop line between Topock, Ariz. and Milpitas, Calif. **$4,500,000.**

▲ **California and Oregon**—OIL PIPE LINE—Cal.-Ore. Pipeline, Pier 14, San Francisco, Calif., laying 103 mi. oil pipe line from Crescent City, Calif. to Medford, Ore. **$2,500,000.** John L. Hunter, Jr., 365 S. Van Ness Ave., San Francisco, Calif., consult. engr.

▲ **Ga., Savannah**—CLASSIFICATION YARDS, etc.—Seaboard Air Line R. R. Co., W. D. Simpson, ch. engr. S.A.L.R.R., Norfolk 10, Va. classification yards and repair shops, **$3,500,000.**

▲ **Iowa**—TRANSMISSION LINE, etc.—Northwest Iowa Power Co-operative, Cherokee, 621 mi. 69 kv transmission line, 32 substations and other related facilities, Cherokee Co., **$7,551,000.**

▲ **Missouri**—UNDERGROUND GAS STORAGE RESERVOIR—Laclede Gas Co., 1037 Olive St., St. Louis 1, Mo., underground gas storage reservoir in 25,000 acre site, northeast of Florissant, St. Louis Co., incl. buildings for compressors and dehydrators, series of pipe and valve sets at wellheads, **$10,000,000.**

▲ **Nevada**—GAS MAIN—El Paso Natural Gas Co., Bassett Tower, El Paso, Tex., 110 mi. gas main to Nevada Natural Gas Pipe Line Co. near Las Vegas, **$18,000,000.**

▲ **New Mexico**—GAS MAIN—El Paso Natural Gas Co., Bassett Tower, El Paso, Tex., natural gas main from northern fields to near Gallup, N. M. **$11,500,000.**

▲ **OKLAHOMA**—GAS PIPE LINE—Oklahoma Natural Gas Co., 624 S. Boston St., Tulsa, 68 mi. 18 in. gas line from area Tulsa to Pryor. **$1,950,000.**

▲ **Alberta**—CRUDE OIL PIPE LINE—Canadian Gulf Pipe Line Co., Hudson's Bay Bldg., Calgary, 115 mi. crude oil pipe line from Settler Field to Edmonton, **$5,000,000.**

▲ **Alta., Jasper**—LOG CABIN BLDG.—Canadian National Railways, B. Wheelwright, ch. engr., 355 McGill St., Montreal, Que., plans by G. F. Dummond, ch. archt., c/o owner, rebuild main log cabin bldg., Jasper Park Lodge **$4,000,000.**

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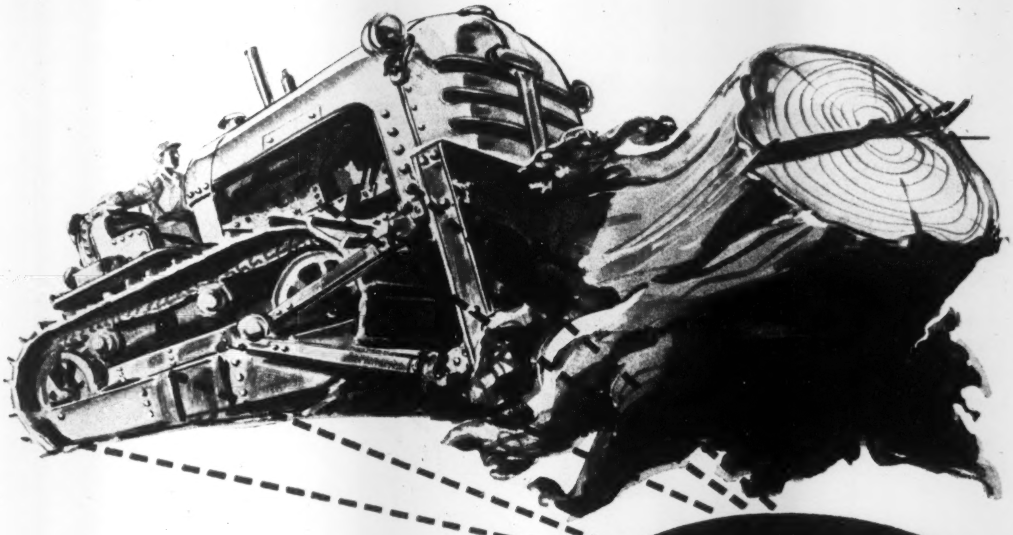

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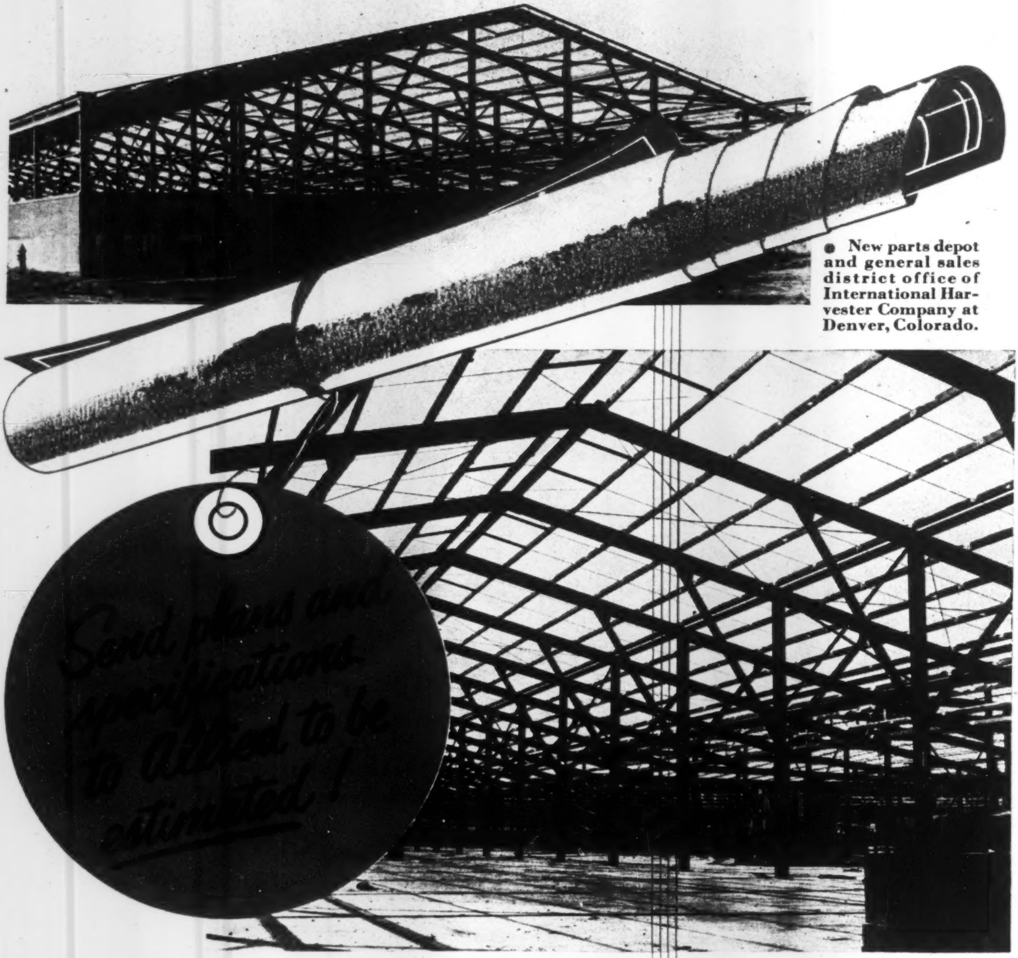

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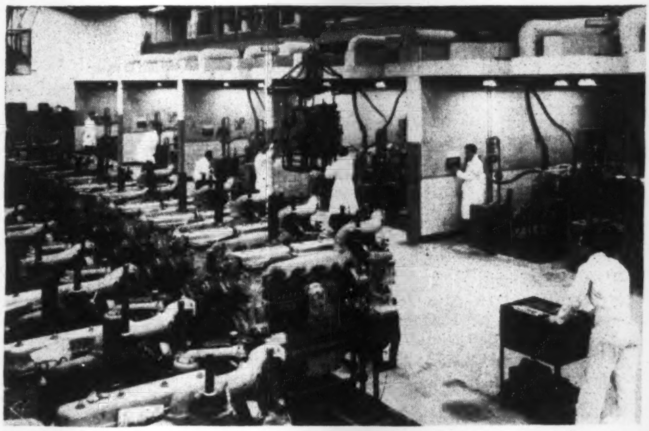


TEST LAB—Batteries of diesel engines undergo lab tests constantly at Caterpillar's main plant at Peoria. Lubricants, fuels are also tested and analyzed.

Revolutionary new lube oil for diesels reduces wear on pistons and rings

J. M. Connolly
Associate Editor

After years of working, testing and studying, Shell Oil Co. scientists have succeeded in developing a new, highly fortified lubricating oil called Shell Rimula which seems to be the answer to the prayers of diesel engine owners and operators for reduced engine wear.

By coincidence, practically on the eve of its appearance, Caterpillar Tractor Co. was able to begin a series of extensive laboratory and field tests after putting it to work on the West Coast. Here's how it happened:

For the last few years, as you well may know, Shell has been carrying on a campaign aimed at educating the motorists to its claim that acid action, and not friction, is the major cause of engine wear.

Satisfied with their results on gasoline engines, they took a further step and have come up with Rimula, a lube oil with the right additives in just the right combination to reduce wear in heavy-duty diesel engines, especially those used in gruelling, diversified construction work.

At just about the same time Caterpillar men were searching for a lube oil that would help solve their wear problems encountered in West Coast marine service. Fuels of high sulfur content, aggravated by low temperature operations and stop-and-go use of engines, brought on increased engine wear, ring sticking and heavy piston deposits. There was a crying need for correction and a number of alternatives were considered:

(1) Use of metals which could withstand the corrosive effects of acids formed during combustion (but the cost of such an engine would be prohibitive).
(2) Further refinement of fuel to remove all sulfur (but here again the cost would be tremendous and fuel users would have to pay the premium).
(3) Development of a super lubricating oil that would neutralize and hold harmlessly the acids formed. This seemed to be the answer.

Since fuels with high sulfur content burned in engines showed many of the same results formerly experienced when using straight mineral oils in the early diesel engines, this super lubricating oil, if developed, would have to prevent: (1) Heavy deposits on the pistons and rings, (2) high wear rates and (3) unduly frequent oil changes. Existing additive oil did not prevent these conditions in an engine burning high sulfur fuels. When oils were employed in exhaustive lab and field tests containing several times the amount of additives, in proper balance, generally used, the wear rate dropped at once. Carbon deposits, lacquers and gum formations disappeared from the pistons and oil change periods returned to a more normal interval.

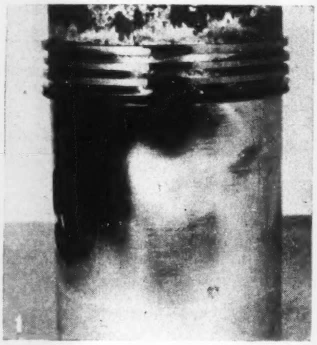
• Why so much sulfur? Why has there been an increasing amount of high sulfur fuels on the market? First of all, 36% of all fuel produced in the U. S. contains at least ½ of 1% sulfur. In addition, there's been a tremendous increase in liquid fuel consumption. Crude oil stocks, formerly held in reserve because of their sulfur content, had to be tapped for use. Caterpillar's general service manager, in advising his field service men, warned them that fuels with higher than 0.5% sulfur content were apt to appear more frequently in some areas and states than in others. Thus they could expect service problems including sticky pistons and high sludge deposits occasionally in those areas. Problems in delivery of fuels may cause a shipment of high sulfur fuel for instance, to appear in Massachusetts, a so-called "free from sulfur" area—and vice versa.

• Common sense research—Shell knew that in a four-cycle engine, for instance, liner wear was always most pronounced in the region near the top of ring travel. It was also apparent that a more or less stable oil film existed over this part of the liner at all times. Therefore, it followed that acidic molecules produced in the combustion zone could reach the liner surface only by diffusion through this protective oil film.

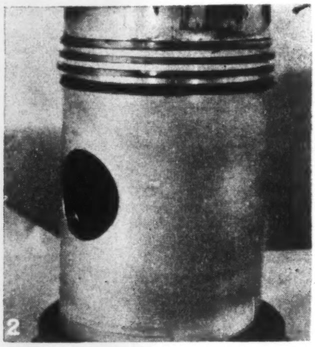
Their problem boiled down to this, then: Produce some additives which would combine to neutralize the acids before they reached the metal surfaces to cause corrosive wear.

• Caterpillar helps, too—Caterpillar meanwhile took the new fortified oil and found it the answer to their prayers for marine service. Not satisfied with stopping there, they put it through an extensive series of field and laboratory tests with the result that they have designated it as a Series 2 oil, superior to their old 1946-47 list of approved lubricants.

Continued tests produced consistent data that indicated reduction of ring sticking, scratching and ring deposits, as illustrated in the accom-



NORMAL WEAR—After running with heavy-duty oil in the crankcase through 20 drain periods of 120 hr each, this piston showed normal wear and deposits upon removal from a "Cat" 6-cyl tractor diesel.

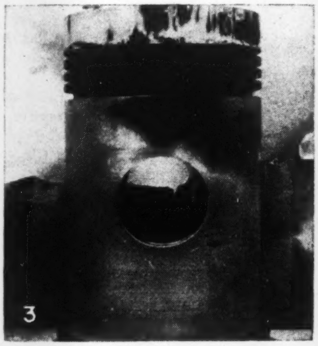


LESS THAN NORMAL WEAR—a sister engine, going through the same paces with HD oil for only 960 hr showed wear and deposits below normal, as expected. Shorter drain periods up the cost too much.

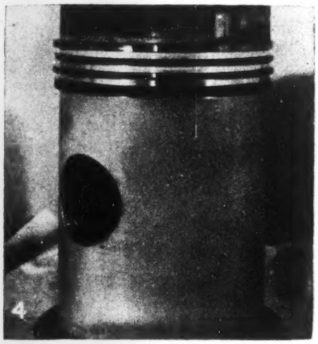
panying photos. Although the data in these field tests dealt principally with the effect of extended drain periods on piston deposits and engine wear, it was observed that general engine conditions at the end of the tests were excellent. Valves, valve mechanisms, bearings, crankcase and filters showed marked freedom from deposits as well.

• **Typical test**—One of the interesting tests under actual operating conditions took place in Phoenix, Arizona, where two 6-cyl diesel tractor engines operated side by side, following the same work schedule and encountering the same dusty conditions. First they ran them with heavy-duty 2-104B in the crankcases (the number is merely a military classification) for 20 and 8 drain periods of 120 hr each, respectively. Then they removed a piston from each engine and compared them. The one that had run 2,400 hr showed wear and deposits typical of normal operation. Tractor B's piston had run for only 960 hr and showed wear and deposits slightly below normal. This was as expected, but left the equipment operator with the expensive choice of shorter drain periods to minimize wear.

Next they put in Shell Rimula oil and ran Tractor A through six 120-hr and eight 240-hr drain periods. Tractor B went through seven 120-hr and four 500-hr drain periods. A piston from the former this time showed that both cylinder and ring wear were substantially reduced and de-



RESULTS OF RIMULA—Same tractor A as shown in fig 1 this time ran with Rimula oil in cranckcase through six 120-hr and eight 240-hr drain periods (2,460 hr) with reduced wear and deposits.



STILL LONGER PERIODS—Tractor B's piston this time took Rimula through seven 120-hr and four 500-hr drain periods. Inspection showed reduced wear and deposits, negligible 1% ring groove carbon.

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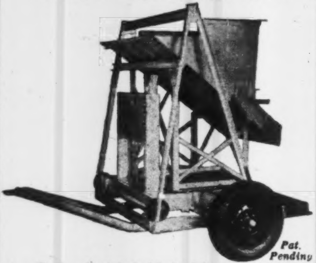

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posits were at a minimum, even after a total of 2,640 hr. The piston from Tractor B, which had run this time for 2,840 hr over longer drain periods, showed reduced wear and deposits, and a negligible 1% top ring groove carbon.

• Additional info – Significantly enough, the performance of a lubricating oil seems to be materially affected by load factor and resultant high temperature. High load operation, typical of construction jobs, apparently tends toward causing heavier piston deposits without large influence on liner and ring wear rates. Engine wear as a result of sulfur content in fuel is encountered more severely at lower liner skin temperatures.

Rimula oil is one of Shell's "worldwide" products which means that it's not only available in almost every spot in the world, but that it's make-up is guaranteed to be consistent wherever it's sold. Now that Caterpillar has a Series 2 oil that it recommends and can depend upon, they will undoubtedly extend their efforts in several other directions, including increased experiments with use of aluminum bearings and full-flow filtration for reduction of crankshaft wear (which we will report in these columns at a later date). Rimula oil might almost be pictured as the third leg of the stool which they needed for balance with the other two. For further information write SHELL OIL COMPANY, DEPT. R, 50 WEST 50TH ST., NEW YORK 20, N. Y.

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An integral treatment for producing concrete with low absorption, of special advantage for concrete slabs on the ground not subjected to hydrostatic pressure, such as in housing projects and other low-cost construction, has been announced by The Master Builders Co. According to the manufacturer, the new product, named Stearolith resists water because of (1) its water-reducing, cement-dispersing action which lowers porosity; (2) its water-repellant stearate which reduces capillarity and absorption and (3) its reduction of total water content which increases strength, reduces volume change and attendant volume change cracks. It's introduced into a mix either dry or with water in the proportion of 0.7 lb for each sack of Portland cement. THE MASTER BUILDERS CO., 7016 EUCLID AVENUE, CLEVELAND 3, OHIO.

("New Products" contd. on p. 131)

TEN SECOND

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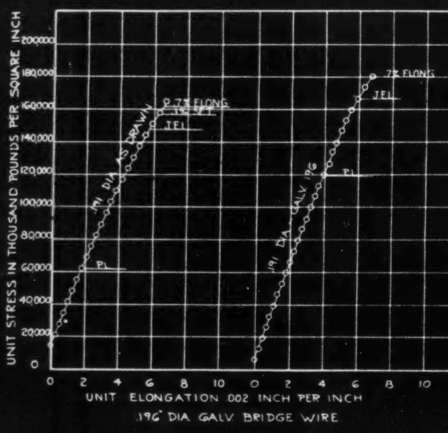

Graph showing stress-strain curves of cold drawn .196" diameter Prestressed Concrete wire. As-Drawn wire is to the left. Hot galvanized to the right. Note proportional limit climbing from 60,000 p.s.i. to 120,000 p.s.i.

Why you should use hot-dipped galvanizing

SURFACE PROTECTION is *not* the chief reason to specify hot-dipped galvanizing on your post-tensioned Prestressed Concrete projects. It's true that this method gives the best protective coating against corrosion. More important, however, hot-dip galvanizing of the acid steel relieves the wires and raises their elastic properties considerably above those of cold drawn wire.

This wire permits the use of design-tension stress of 120,000 p.s.i. Used at this value, you are always working in the elastic range of the wire itself. And we can guarantee absolute stability with no relaxation of the steel . . . your assurance of safety for the life of the structure.

Each length of Roebling Prestressed Concrete Strand is made into an assembly at the factory with the use of specially designed fittings. Each fitting develops the full breaking strength of the strand without exceeding the yield point of the material in any part of the fitting. Each assembly is then proofloaded in excess of the recommended design-tension stress.

At the construction site the use of an inexpensive hydraulic ram brings the strand assemblies to stress in minutes, cutting the on-the-job labor costs to a minimum. And you never need worry about costly take-ups either.

Strand for post-tensioning is just one of a full line of Roebling Prestressed Concrete products. Wire and strand for *pre-tensioning* are made of high tensile acid steel that results in exceptionally high elastic characteristics. They are specially treated to greatly increase their bonding quality, too.

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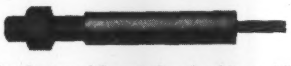

Roebling Prestressed Concrete Strand and its specially developed fitting which are available in a complete range of sizes from 5/8" to 1-9/16". With an inexpensive hydraulic ram, assemblies such as these can be brought to stress in a matter of minutes.

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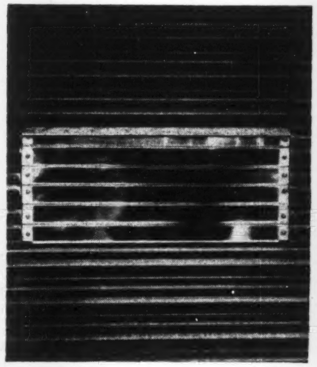

Rolling doors have full-vision windows

After five years of study and test installations, a manufacturer has now come up with a full vision window that is part of a rolling steel door. Hitherto, windows have been the slit type which could be no higher than the 4-in height of any one of the slats that make up the door. The new Full Vision Window can be had in heights of 12, 16, 20 or 24 in and up to 20-in widths. Two or more can be used on larger doors. Windows are presently furnished with transparent plastic lights, shaped and assembled, as shown, to coil with the door. It's said to preserve a solid closure, keep out drafts, admit plenty of light, help control truck movement and allow identification of personnel and trucks before opening doors. **CORNELL IRON WORKS INC., 36TH AVENUE AND 13TH STREET, LONG ISLAND CITY, NEW YORK.**

New product briefs . . .

Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y. announces their redesigned line of **horizontal, multi-stage centrifugal pumps for medium-pressure** applications. These pumps, called Class CNTA, are intended for boiler feed, mine dewatering, marine, refinery and general industrial services to 800 lb. Built in 1½, 2, 2½ and 3 in. sizes, they're available with 4, 6 or 8 stages.

A 22-yd tractor-drawn scraper, the TC-190, has been announced by **Wooldridge Mfg. Co., Sunnyvale, California and Chicago, Illinois.** Capacities are 19 yards struck and 22 yards heaped; front tires are 21:00x24 and rears, 24:00x25. A "boiling bowl" principle is said to produce more rapid loading.

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Aetna Casualty & Surety Co., The....... 124
Allied Structural Steel Co. 126
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American Manganese Steel Div.
  American Brake Shoe Co. 74
American Steel & Wire Co. 59
Atlantic Steel Corp. 110
Autocar Company 123

Baker-Roos, Inc. 120
Bay City Shovels, Inc. 76
Bayley Co., William 22
Bethlehem Steel Co. 1
Blood Brothers Machine Co. 114
Blum & Co., Inc., Julius 71
Broderick & Bascom Rope Co. ....4th Cover
Buchanan Lumber Co. 128

Casey & Case Foundation Co. 112
Cement Gun Co. 110
Central Surety & Ins. Corp. 79
Chapman Valve & Mfg. Co. 64
Commercial Shearing & Stamping Co. ... 112
Continental Steel Corp. 61
Construction Equip. Div.
  Baldwin-Lima-Hamilton Corp. 3

Dixon Valve & Coupling Co............. 72
Dresser Mfg. Div., Dresser Ind. 52

Economy Forms Corp. 103
Electric Tamper & Equip. Co. 77
Ellicott Machine Corp. 119

Faber-Castell Pencil Co., A. W. 7
Fenestra Building Products 63
Fidelity & Casualty Co. of N. Y. 56
Ford Motor Co. 6

Gateway Engrg. Co. 68
General Electric Company ....2nd Cover
Grace Mfg. Co., W. E. 60
Griffin Wellpoint Corp. 103
Gunite Concrete & Construction Co. 119

Hallicrafters Co., The 113
Harnischfeger Corp. 70
Hayward Company 128
Heltzel Steel Form & Iron Co. 10
Hendrix Mfg. Co. 116

Ingalls Iron Works Co. 12
Ingersoll Rand Co. 115
International Harvester Co............. 81

Jaeger Machine Co. 62
Johns-Manville Corp. 20
Joy Mfg. Co. 129

Keasbey & Mattison Co. 37
Keuffell & Esser Co. 4, 5
Koehring Co., The 54, 55
Koppers Co., Wood Preserving Div. 71

La Crosse Trailer Corp. 58
Ladish Co. ....Insert 17
Lamson & Sessions Co. 125
Lefax Co. 110
Lewis & McDowell Inc. 68
Lighthouse Trailer Co. 120
Lincoln Electric Corp. 48
Lipe-Rollway Corp. 80

Macomber, Inc. 34
Mahon Co., R. C. 78
McGraw-Hill Book Co. 65
McKinney Drilling Co. 61
Merritt-Chapman & Scott Corp. 124
Morse-Starrett Products Co. 129

Nelson Stud Welding Div.
  Morton Gregory Corp. 108

Philadelphia Gear Works 15
Phoenix Bridge Co. 121
Plasteel Products Co. 79
Porter Co., Inc., H. K. 114
Powder Power Tool Corp. 51

Quaker State Oil Refining Corp. 117

Raymond Concrete Pile Co. ....3rd Cover
Remington Arms Co., Inc. 31
Robertson Co., H. H. 44
Rockford Clutch Div., Borg-Warner 122
Roebling's Sons Co., John A. 130

Sauerman Bros., Inc. 111
Sika Chemical Corp. 112
Smith Co., S. Morgan 14
Spencer, White & Prentis, Inc. 111
Sprague & Henwood, Inc. 121
Standard Dry Wall Products 73
Stang Corp., John W. 122
Symons Clamp & Mfg. Co. 75

Taller & Cooper 69
Timber Engineering Co. 16
Timken-Detroit Axle Co. 66, 67
Torrington Co., Bantam Bearings Div. .. 38
Trailer Village, Inc. 114
Twin Disc Clutch Co. 57

Union Metal Mfg. Co. 18
Unit Crane & Shovel Corp. 82
U. S. Rubber Co. 32
U. S. Steel Supply Co. 109

Vickers, Inc. 11

Westinghouse Electric Corp. 8, 9
Whiteman Mfg. Co. 13
Wild Surveying Instrument Supply Co.
  of Amer., Inc., Henry 2
Winslow Gov't Std. Scale Works, Inc. .. 128
Wolverine Tube Div. 43
Wood Co., R. D. 121

Professional Services......83, 84, 85

SEARCHLIGHT SECTION

(Classified Advertising)

H. E. Hilty, Mgr.

Employment
  Positions Vacant 85-86
  Selling Opportunities Offered......... 86
  Positions Wanted 86, 87
  Selling Opportunities Wanted........ 87
  Employment Services 85

Educational
  Schools 86
  Tutoring 86

Business Opportunities
  Offered 87

Notices
  Auction 87
  Proposal 97-100

Property
  For Sale 90

Equipment
  (Used or Surplus New)
  For Rent 89
  For Sale 87-92
  Piling 92
  Pipe 92
  Rail 92
  Surveying Instruments 87

Wanted
  Equipment 87
  Miscellaneous 87

ADVERTISERS INDEX 98

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EDITORIALS

Lift to American engineering

So MANY spectacular and original designs of recent years have had to be recorded under a foreign dateline that it is a pleasure to be able to point with pride to some notable American pioneering—the huge concrete boxes that will support 90% of the dead load of a New York City pier through their own bouyancy. The first of these boxes was towed down the Hudson River last week from the casting yard to the pier site.

Not since the Lake Washington floating concrete pontoon bridge was built at Seattle a dozen years ago has a comparable American job been so deserving of acclaim for ingenuity and daring. Credit in the first instance goes to the designer, Emil H. Praeger of the consulting firm of Madigan-Hyland for his concept of combining buoyancy and fixed supports to carry permanent loads, (ENR Jan 11, 1951 p 46) but it must also be extended to the city's Department of Marine and Aviation which permitted the concept to be applied to a project of such magnitude. Too often design pioneering ends on paper because those who control the purse strings lack the foresight or courage to sense its advantages.

It is proper to emphasize this job as an American achievement because, apart from the Lake Washington pontoons, most of the notable applications of floating concrete boxes have occurred in Europe. The New York City boxes, for example, are reminiscent of the British caissons that were towed across the English Channel to be used as breakwaters in the wartime artificial harbors on the Normandy beaches. In the same way the new wharf under construction at Le Havre, France, consisting of concrete boxes floated into position on prepared supports, (ENR June 5, 1952 p 46) can claim a certain resemblance, except that the supports carry the full load with no aid from buoyancy. And, going back nearly 20 years, one can recall the working chamber bases for the piers of Denmark's Little Belt Bridge (ENR June 13, 1935 p 841) which were cast on shore in an inverted position, turned over after they were floating and then sunk in 130 ft of water as the pier shaft was built up.

Each of these jobs was original or spectacular in some respect but none utilized the principle of combining buoyancy and fixed supports and none employed boxes as large as those at New York. An idea of their comparable magnitude can be gained from noting that the enclosed volume of each of the New York boxes is approximately 1,000,000 cu ft. The Normandy caissons were 75%, the Little Belt pier bases 25% and the Le Harve wharf sections 15% as large. The Lake Washington pontoons were one-third the size of those at New York.

Here then is a job that should give a lift to American engineering in a field where, like in concrete dams, concrete bridges and to some extent in structural welding, foreign engineering has collected most of the recent laurels.

One may hope that it may also serve the broader purpose of encouraging American designers to greater questioning of conventional practices on works of every type. Our particular kind of economy, in which labor costs a lot and materials are plentiful and relatively cheap, properly and naturally conditions our design thinking. Yet there is always the danger that the resultant atmosphere will dull incentive toward delicate designing and enshrine the idea of making structures "hell for strong" as construction men say. Under such circumstances innovation and boldness—and thus progress—suffers. The New York pier boxes are a heartening expression of the real function of design.

Talking pavements?

SOME YEARS AGO, when the New Jersey State Highway Department was building a four-lane highway, the design department proposed permanent white dividing lines between parallel lanes going in the same direction. To increase the visibility of such lines at night, the designers had the surface of the concrete divider scored transversely to form ridges that would reflect light from headlamps. But another result—and an unexpected one—was that when a car wheel transgressed onto the divider it gave off a loud hum as a warning to the driver that his car was out of its appointed place.

Interest in the subject now has been revived by an announcement from the department that a similar divider is to be installed experimentally between opposing lanes, where the need for a clear indication that a car is out of its proper lane is more important.

This publicity is viewed with misgivings by the design engineers, who fear another upsurge of the proposals they received when the first "singing dividers" were put down. Instead of scoring the divider the way it was then done, said these would-be inventors, why not carry studies farther to produce a variety of monosyllables that when heard in sequence will form words and phrases such as "Keep off" or "Move right." If some expert in harmonics should now come up with the right answer, the designers fear that they will be expected to lay pavement that sings "School Zone" or "Sharp Curve."

Actually such success would merely be the beginning of their troubles. Have they overlooked the ubiquity of the singing commercial? Just imagine—as hundreds of clever advertising experts are sure to do—the appeal of an exit lane that would intone EAT AT HAR-RIES, JUST AHEAD! The designers have a real job ahead of them. To maintain national sanity they must devise a ribbed pattern for the dividers that only produces the music. Let each driver provide his own words.

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